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Colorado's Effect On Oil Industry Year Off; Fields Controlled

By Paul Wagner

STAFF REPRESENTATIVE

DENVER, May 15. WHATEVER the extent of Colorado productivity, this state will prove to be no important source of marketed crude oil in 1924.

The proved or partially proved structures are solidly held in strong hands, so far as indicated with regard to acreage within the closing contours mapped.

Although future drilling may disclose other fields, the only production that has been definitely indicated is that to come from the Moffat Dome, across the Continental Divide, near the town of Craig; and the Wellington Dome, on the front range of the Rocky Mountains, northerly from Denver and 16 miles from Fort Collins.

Even fresh discoveries probably would prove to be a similar control—inasmuch as operations are to be on gigantic enough scale to preclude much work by companies or persons unprepared for large expenditures and great risks.

Across the Continental Divide, in Moffat county, where the discovery well of the Texas Production Co. and the Transcontinental Oil Co. of Pittsburgh was drilled, entrance is effected into the area only by the Denver & Salt Lake City railroad, which is operated under the most adverse and extreme conditions, and will retard active development of the district. Unusual difficulties will be met in moving oil out either by railroad or pipeline construction.

Only one well exists in that territory at the present time. This is the completion of the Texas Production Co. and the Transcontinental Oil Co. of Pittsburgh, on acreage operated by the former, southwest of the town of Craig.

Made 4200 Barrels Initial

It will be recalled that this so-called Moffat Dome well made better than 4200 barrels of high gravity crude on a 24-hour test after topping the sand at 3805 feet and being drilled 22 feet into the pay. It is on a structure solidly held by the two companies, and, as indicated by the closing contours at the surface, probably will be limited to approximately two and a half square miles of productive ground.

The small area of indicated productivity is not a thing that would minimize the importance of Craig as a field of importance to the Texas Production Co. and the Transcontinental Oil Co. interests. Such a sharp structure may give them all that an operating company could reasonably ask in the way of important future production, but this condition does delimit possibilities in other respects.

It is indicated that probably any other production to be developed in this farthest northwest county in the state of Colorado will come from sharp structures of small areal extent and that generally they may be expected to be developed by similarly strong interests.

Four more wells are to be drilled on the structure where this discovery was completed. These are under way or they are about to be started. Probably one more completion can be effected by September, possibly two; but, inferentially, it is likely no definite decision as to crude oil outlet for Moffat dome production would be forthcoming short of that time.

Pipeline To Be Expensive

Expensive pipelines, which could not cost less than $5000 a mile and which more probably would reach nearer $10,000 through such a region as this, are not built on the strength of a single well.

Although the Prairie interests, which control a refinery at Parco, Wyo., through stock ownership in the Producers & Refiners Corp., are understood to be willing to build such a pipeline to Moffat Dome under certain conditions, the attitude of The Texas Co. interests is not clear.

No official announcement has been made by either, nor is it certain when any statement will be forthcoming; but operating as it does at Casper a sizeable refinery of its own, The Texas Co. may not care to enter a deal with the Prairie interests that, inferentially, would tie up part of the crude that may be wanted in its entirety.

The Prairie-Producers & Refiners interests have a line out of Salt Creek to Parco, which could be utilized in making shipments to The Texas Co. plant at Casper after connection with an outlet to Parco from Moffatt Dome, a distance of about 115 miles.

Since it probably will be September before another well is completed on Moffat dome and because of winter obstacles to construction, whatever pipeline policy may be decided upon, it is unlikely that any considerable quantity of crude could reach the country away from Craig before this time next year; and it may be even longer deferred. Others have estimated that it will be two years before Craig oil can be put on the market in an important way.

Wellington Operations Slow

Similarly to the situation in the Moffat Dome region, operations will be slow along the front range area northerly from Denver, where a narrow belt of possible productivity has been indicated by the Wellington Dome discovery 16 miles north of Fort Collins, by the Union Oil Co. of California.

In both regions, only companies with strong financial resources will be in position to push development. It may be necessary to drill more than one well to test some of these structures and these ordinarily cannot be completed short of $100,000 each.

Only the fact that no grief was experienced in drilling and the favorable shale penetration on the way down made it possible for the Union of California to complete its Wellington Dome "dis-

covery" for the reported cost of $77,000 to a depth of 4285 feet, where the top of the gas sand was hit.

The Wellington Dome well is on a structure described as pendant-shaped and approximately four and a half miles long by one and a half miles wide. More definitely described as to its prospective area of production, the closing contours indicate roundly 2100 acres will be good.

Some question exists in the minds of various operators as to whether the Union of California has an oil or a gas field on the Wellington Dome. The company itself is confident that the structure will be productive of oil and it is testing out two other adjacent structres.

One of the others, is the Douglas Lake structure, a little west of south of the Wellington Dome; the third is the Fort Collins structure, which reaches to a point within a mile and a half of the town of Fort Collins at its south end and which lies directly south of the Wellington Dome.

Union of California is drilling two additional wells on Wellington Dome, one a California equipped rotary with 112-foot steel derrick and the other the customary cable tool outfit.

When the Wellington discovery was made several months ago it was completed to 4285 feet, top of the gas sand, after setting 4234 feet of 8-inch casing in the hole. It blew itself in from the level mentioned making 82 million cubic feet daily and, naturally, drilling itself deeper into the pay as indicated by the fact that the initial showing of gas was only about 3 million or 4 million cubic feet.

Total depth of the Wellington discovery, as it now stands, therefore, is unknown. It is shut-in, except for the pinched down production of small quantities of gas being used as fuel in the drilling of other test wells.

Charles Sherman, in charge of Union Oil Co. of California operations at Fort Collins.

The gas used as fuel shows no trace of oil, but the well is in no sense to be considered opened up; and since it was drilled at what is believed to be approximately the top of the sub-surface structure the small amount of gas being taken out as compared with the potential volume would make it hardly probable that any trace of oil should be expected to show.

Steel Derrick Test

The steel derrick test on Wellington Dome is approximately one and a half miles south of the "discovery," on the axis of the structure, and was started with 24-inch hole. It is on 6-9N-68W, in which same section the second cable tool test is drilling ahead around the 2400 foot level.

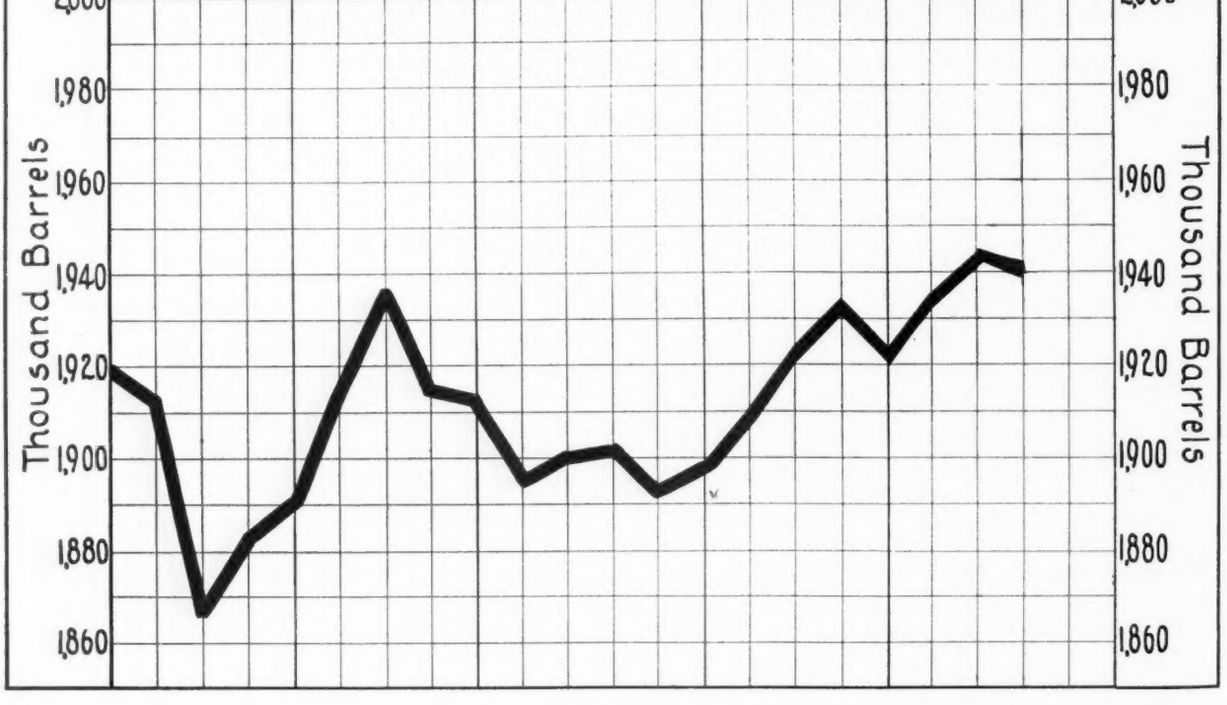
As in California, the rotary outfit was constructed by building standard engine and belt house at the same time the derrick was put up. This is used as preliminary hoisting installation to put up rotary equipment; also for extra pulls, such as stuck pipe and the setting of casing. The calf-wheel is on the band-wheel side of the derrick and the bull-wheel on the opposite.

The bull wheel is used in rotary drilling in California practice, as the writer has previously pointed out in NATIONAL PETROLEUM NEWS only in an emergency; and because of the character of the combination rig, which makes it an essential installation against a change-over from rotary to standard tools.

In this practice, as will be followed in the Colorado test, the calf-wheel is operated by a chain driven by a steel

(Continued on Page 20)

Watch The Trend Of The Week's Production



THIS WEEK'S OIL NEWS SUMMARIZED

Marketing

(Maketing News, pp. 105-118)

REFINERY gasoline markets are stronger. This has been accomplished by the purchase of 10,000,000 gallons of distress gasoline from Mid-Continent refiners by a subsidiary of the Standard Oil Co. of New Jersey and by improved domestic demand. Export demand is practically dead at present although the Standard's purchase probably will be exported later in the year. It will be collected at Baton Rouge over the next 30 days.

Jobbers who purchase under marginal contracts have been slow in placing shipping orders because they fear a reduction in tank wagon prices may come soon and they don't want to have filled tanks in such event. Spot buying has been in slightly greater volume as weather has improved and motoring increased.

Kerosene has been active in the southwest where refineries have benefitted from the replenishment of farmer consumer stocks. In North Texas kerosene is becoming scarce and only small amounts of high quality burning oil is available in Oklahoma.

Neutral oils have been easier although prices are being maintained fairly well. Cylinder stocks are less brisk but demand for bright stocks is good. Buyers have been paying little attention to wax but heavier buying is expected soon.

Fuel oil has been accumulating in north Texas but prices are not changed. The market in Oklahoma is steady. Gas oil is plentiful and cheaper.

Humble Restores Crude Prices As Of May 10

HOUSTON, TEX., May 19.—Because other purchasing agencies had not met the price reduction posted May 10 by Magnolia Petroleum Co. on Mid-Continent and north Texas crudes, and followed by Humble Oil & Refining Co. on the same day, the Humble today restored its price to the previously existing level and made this action retroactive to that date.

In taking this action, Humble made an announcement, in part, as follows: "We are of the opinion that crude stocks, refined stocks, plus the steady increase of production, together with the probable discovery of new pools taken into consideration with consumption of various petroleum products, warrant a weak crude market. Believing this, we posted a reduction in price of crude effective May 10. We now find that the greater part of all crude is being bought at prices in effect prior to May 10. Notwithstanding our view of the situation, it is our desire not to penalize any of our customers by reason of the fact that they are selling their crude to us. Therefore, we have today reinstated our posted price effective prior to May 10, making the posting retroactive and thereby wiping out the reduction."

Swan & Finch Alters Capital Structure

NEW YORK, May 17.—Stockholders of the Swan & Finch Co. at a meeting May 15 voted to decrease the par value of the capital stock from $100 to $25 a share and increase the number of shares from 40,000 to 160,000. Holders of each $100 share will receive two $25 shares. This will reduce the par value of the outstanding capital stock by one half, thereby eliminating from the books a capital deficit. The style of the company was changed to the Swan & Finch Oil Corp.

The stockholders also approved a reduction on dividends on the preferred stock accruing after June 1 from 8 per cent, cumulative, to 7 per cent, cumulative.

President W. G. Moncrieff said that although the company was operating profitably in 1924, it was not in position to pay even the 3½ years' arrearage in the preferred dividends as the company's surplus was wiped out and capital impaired by inventory and operating losses during the years 1919 to 1921.

Financial

(Financial News, pp. 115-118)

THE stock market traveled an uneven course last week and oil shares moved down and then up, the tone of the oil list being considerably better than most other industrials.

The annual report of Cosden & Co. showing a large deficit on the 1923 operations caused both of preferred and common to sink to new lows. Standard of New Jersey also was depressed and fell to a new low. Many stocks, however, made small gains over the week with Pacific, Marland and Pure advancing more than a point each.

The Standard Oil stocks on the curb were generally weak with most of the active stocks except Vacuum falling to new lows. Most Independents on the curb also were weak but Cities Service preferred rose to a new high at 74.

Production

(Production News pp. 35-47)

TOTAL production is running at about the same level as a week ago. A small increase in Smackover output was more than made up by declines in Oklahoma and Texas districts.

First wells drilled on the acreage in Burbank taken at the last Osage sale have not been as prolific producers as had been anticipated, and as a result Burbank production is down to around 87,000 barrels. Total Oklahoma is off 2000 barrels. The Cromwell district has more and more the earmarks of a real field.

California shows an increase of only few hundred barrels. The Union Oil Co.'s new well at Rosecrans averaged 700 barrels a day for its first week.

Total daily production May 17, by districts, as compared with May 10:

	May 17	May 10
Oklahoma	412,560	414,420
Kansas	72,060	72,215
Wyo.-Mont.	130,245	129,010
La.-Ark.	203,857	201,212
California	641,700	641,300
Texas and Coastal La. ...	377,440	381,427
Eastern	104,000	104,000
Total	1,941,862	1,943,584

Limited Osage Sale May Be Held In June

TULSA, May 17.—A limited or special sale of Osage oil leases may be held during June to protect tracts now subject to extensive drainage, it was learned by Harry H. Smith, secretary of the Mid-Continent Oil & Gas Association, at Washington this week. The association asked that drilling suspension orders be continued in effect and that no sale be held this June due to the precarious position of oil markets.

W. C. Franklin, T. J. Leahy and Carl Barker were in Washington with Mr. Smith and assisted him in presenting the case of operators for continued drilling suspension. The case was taken under advisement but the impression was gained that the department of the interior might be willing to continue the present order in effect on present leases this time.

Crude Changes

SHREVEPORT, May 19.—Today the Atlantic Oil Producing Co. reduced Smackover crude, below 24 gravity, 15 cents to 85 cents, meeting the reduction posted on May 10 by the Shreveport-Eldorado Pipe Line Co. Other companies have not met the new price.

sprocket attached to the side of the band wheel; the bull wheel driven by a bull-rope from the band wheel.

Because of this innovation in Rocky Mountain territory, it is of interest here to repeat that the California practice of setting casing is to run a jerk-line from the end of the casing tongs to a crank on the band wheel in contrast to the use of a cat-line. in southwestern territory. The crank on the band wheel, in California practice, is similar to that used in the Mid-Continent for connecting up the beam for pumping operations.

The dead-end of the drilling line is connected to the calf wheel, and, in the event of mechanical trouble with the rotary draw-works or the engine, standard equipment can be used to pull drill-pipe or handle casing. It is the practice to break-out tool joints in withdrawing drill-pipe by use of the cathead as power. The upper tong, for breaking tool joints is connected by rope to the cat-wheel on the rotary line shaft and the lower tong is held by a cable anchored to the frame work of the derrick.

The tests of the Union of California on both the Douglas Lake and the Fort Collins structures are both being put down with cable tools. The one on the Fort Collins dome is down about 2400 feet and the one on the Douglas Lake structure about 700 feet. The latter is located in 36-8N-69W. Both are smaller structures than the Wellington Dome.

Union's Outlet Plans Uncertain

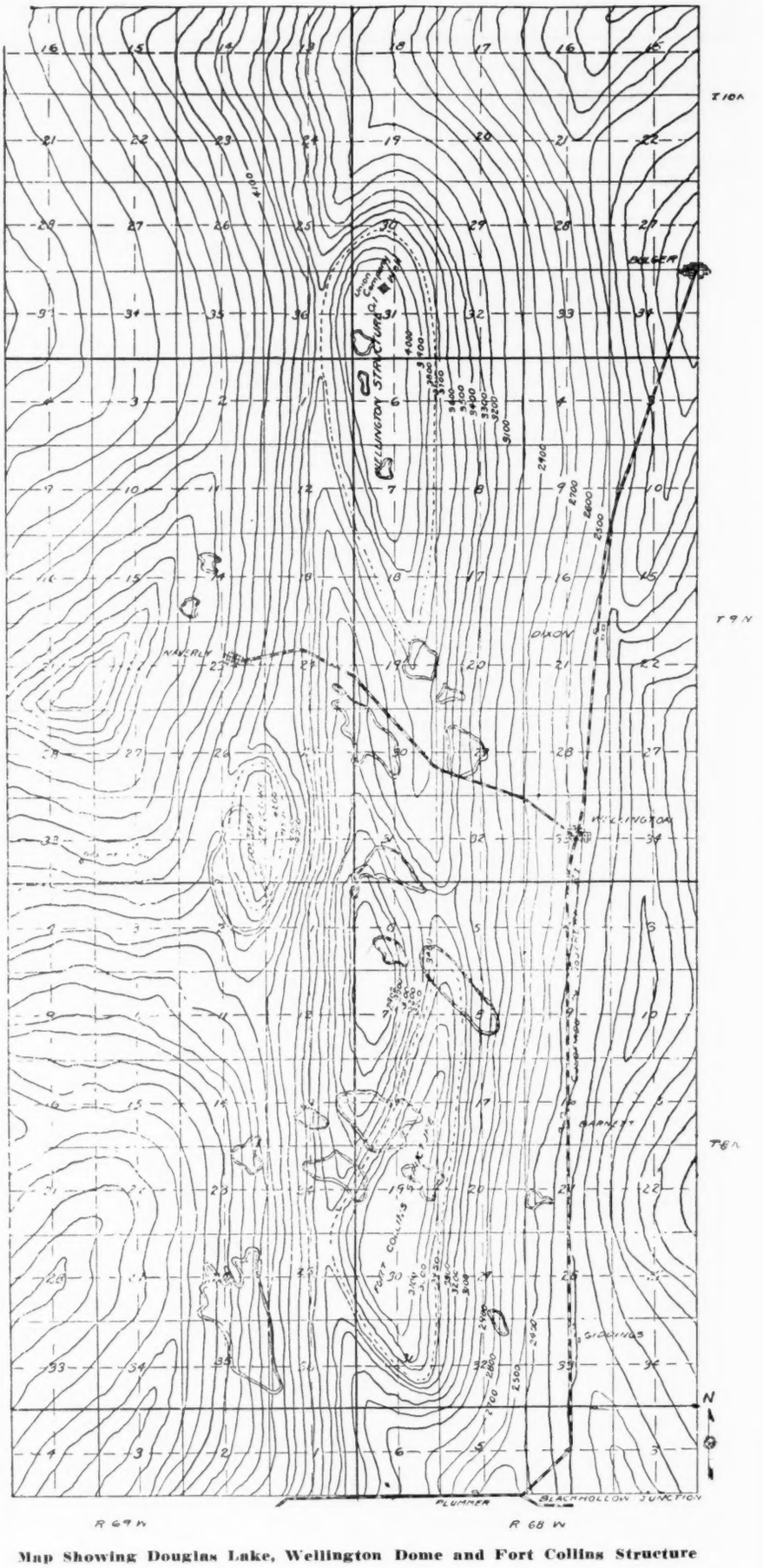
What the policy of the Union will be with regard to the disposition of its oil after a field has been developed must, necessarily, remain a question at the present time. The Sinclair-Standard of Indiana pipeline from Salt Creek to Freeman, Mo., connection with the remainder of that system, passes near the Wyoming-Colorado boundary; or it would be possible to build northward to other Wyoming systems.

Outlet of crude from this region would be less of an obstacle than the construction of pipeline facilities from Moffat county; but more than 100 miles of line would be required to connect up with any existing system. Another factor to be considered will be the policy of the Union of California, also.

It may be that the company will see fit to refine its own crude by construction of a plant at, or near, Fort Collins, entering the bulk markets of the middle-west and northwest, or it may care to supply refined material from such a source to Idaho, part of Washington and possibly California at such time in the future as it may become necessary again for the Pacific coast marketing province to import gasoline from outside of California.

Inference may be drawn, however, that the Union of California will take full advantage of the oil to be recovered and may add to the profitability of its operation by disposing of its gas to the Henry L. Doherty & Co., public service subsidiary that is now supplying Denver with artificial gas as fuel.

As indicating the possibilities of the front range, along which only a narrow strip contains structures at drillable depths, it is explained by technical men that the structures now under development were previously known but were passed up until now because of the disposition of operating companies in the



Map Showing Douglas Lake, Wellington Dome and Fort Collins Structure

Pulling connections into place when well at Fort Collins was controlled.

Rocky Mountain region not to drill below 4000 feet.

That condition is changed at the present time and the area in which it is possible to find structures where the possible oil bearing sands reach within 5000 feet of the surface will be taken up and tested out eventually.

Production at Wellington Dome comes from the Dakota group of formations, somewhere near the top of the series, there being some question in the minds of geologists as to whether the true Dakota has been penetrated or whether the sand is that known in Wyoming as the Muddy.

In Wyoming, the interval becomes greater; but in either case the productive horizon at both Wellington and Moffat Domes is identified as being near the top of the Dakota group.

Near the south boundary of Larimer county, three miles west of the town of Berthoud, the Midwest Refining Co. has a structure that is of similar small areal characteristics as the Wellington, Fort Collins and Douglas Lake domes. It has blocked up the acreage within the closing contours entirely, except for 80 acres held by others who are said to be the Sinclair interests. The entry of Sinclair into Colorado is indicated by the reservation of corporate name filed at the secretary of state's office for the Sinclair Oil Co. of Colorado, which would operate as a subsidiary.

Between Loveland and Fort Collins, rig is being moved in on a block of approximately 5000 acres held by the H. B. Wilcox interests of California. A test is reported to be probably located about three miles north of the town of Loveland.

Southward, near Niwot, in Boulder county, the Haystack Mountain structure is held by the Ohio Oil Co. and the Sand Hills Petroleum Co., the latter a promotion outfit incorporated under the laws of Wyoming. Both are drilling in the same section, 28-2N-70 west. The Ohio is down about 1000 feet and the Sand Hills outfit a few hundred feet. Several years ago, Midwest abandoned a hole on this structure at 2932 feet.

Further south and east of Boulder, in Boulder county, former Governor O. H. Shoup of Colorado, F. M. Flickinger and others hold extensive acreage that is being peddled and on which a test probably will be drilled Eighteen miles northwest of Denver, rig is being moved in on 2S-70W, where the Mullin Syndicate holds 8000 acres.

In eastern Colorado and down into the basin from the front range the formations found at Wellington Dome and elsewhere in the narrow strip of possible territory dip so rapidly that the plains country is without possibilities until such time as drilling is possible to 7000 or 8000 feet, at least.

The foregoing statement applies generally until a region is reached near the Kansas-Colorado line, where formations rise again, perhaps in relation to a hypothetical buried granite ridge referred to by A. E. Fath of the United States Geological Survey in one of its publications.

Working back from the Mid-Continent geologists theoretically believe the Pennsylvania formations exist under the Permian layer found in western Kansas and along the Colorado boundary. Working eastward from the front range of Colorado the area is described as that of fresh water Tertiaries. That a change has been undergone is probable; that change, however, being far east of the front range and outside the area where many hopeless holes will be drilled by promotion interests just far enough out from possible structures to get the hard cash of the still gullible public.

Near Pueblo, in the southern part of the state, a number of tests are being put down. In that region the Dakota is found to reach within a few hundred feet of the surface, but in the past has been water bearing. Many geologists are of the opinion that some peculiar condition of water circulation has flushed the sands in that region and little is expected to result from test operations.

Tests In Northwestern Colorado

In the Moffat county region, near Craig, the Iles structure, to the southeast of Moffat Dome, will be tested by the Midwest. This company also will test out the Tertiary on the Hiawatha structure, in 12N-100W, near the Wyoming-Colorado boundary.

Southwest of the Moffat dome, where a test is now down about 900 feet, on Morgan Dome the Union Oil Co. of California is reported carrying on negotiations.

The Wilson Creek structure, in this general area, was previously tested by the Standard Oil Co. (California) which drilled to 4800 feet without encouraging results.

South and a little east of Craig, in Moffat county, the Beaver Creek structure, said to have closure of one square mile, is owned by the Transcontinental Oil Co., the Texas Production Co., and the Midwest. It is said that probably a joint operation will be put down to test the separately held acreage.

Territory Closely Watched

Most of the stronger Mid-Continent companies, such as the Carter Oil Co., the Gypsy Oil Co., Empire Gas & Fuel Co., Marland Oil Co., and others, either have men on the ground watching developments or they have organizations at work in Colorado.

The extent to which most of these interests will become active probably depends upon the character of fresh discoveries, when and as they come about. Marland Oil, which will operate a wildcat campaign of proportions to be indicated later, has eight crews of geologists in the field under Glen M. Rubey, recently made chief geologist for the Colorado subsidiary.

Empire Gas & Fuel Co. of Colorado is a new subsidiary of the Henry L. Doherty interests to carry on whatever operations the future may indicate to be

Left—J. M. Douglas, geologist Rocky Mountain Division, Union Oil of Cal. Right—R. D. Hawley, attorney for Union Oil, on Wellington Dome.

desirable. Meantime, C. J. Shortess, formerly chief scout for the Empire Gas & Fuel Co. of Kansas, is making headquarters in Denver.

Gypsy Oil Co., the Oklahoma operating subsidiary of the Gulf Oil Corp., has had an office in Denver for some time, but is transferring J. D. Rushmore to Colorado for the concentration of scouting information through Denver from New Mexico, Montana, Wyoming and elsewhere in the Rocky Mountain region where it has men.

A. L. Funk is representing the Carter Oil Co. having been transferred from Tulsa; and so on through a long list of those who are either pursuing a policy of watchful waiting or who are feeling their way.

Salt Creek Still Dominates

In the meantime, the Rocky Mountain producing territory continues to be dominated by the Salt Creek field of Wyoming. Nothing of unusual character, that is to say unmeasured devel-

opment, has come about in the producing fields of the northwest.

Salt Creek continues to produce slightly less than 100,000 barrels daily with the field completely opened up. A drilling campaigin is being carried ahead to maintain the daily output. The fact should not be lost sight of, however, that the completion of the spring and summer campaign of operations, which contemplates several hundred wells, will still leave the second Wall Creek sand only one-fourth drilled up.

Less than half of Salt Creek's ultimate yield is estimated to have been taken out and it is of note that on an edge tract of 80 acres, of which 36 were proven productive, it required 11 years for the water line to move inward 100 feet, as reported by technologists.

The present drilling, which is mainly sponsored by companies of the Midwest group, is calculated to take care of its plant requirements and to offset the previously measured and anticipated decline in production.

Although gasoline stocks in the Rocky Mountain region are estimated roundly at approximately 2 million gallons by company authorities, service station demand in this region is estimated by one of the principal distributors to have been 40 per cent greater the first three months of 1924 than it was in a similar period of 1923. And Salt Creek will be depended upon for its share of crude for stills.

Salt Creek Versus Colorado

Reference to Salt Creek as a field is of peculiar interest in comparison to the developments in Colorado. Its 26 to 28 square miles of productive ground, with three and possibly five productive sands, is in striking contrast to the two to four square miles within the closing contours of the Colorado structures. The Wall Creek sands of the Salt Creek field are either missing altogether on the Colorado structures mentioned, or they failed to develop petroleum production.

Similarly as this factor delimits the possibility of Colorado fields ranking with Salt Creek, so also the characteristics of the concentrated mountain ranges cut out great parts of the state for oil production at all.

Contrasting with these concentrated mountains in Colorado are the small ranges in Wyoming, with chances for folds around the plains areas. Notwithstanding these larger basins and bordering small ranges, it is of note that approached in terms of percentages the large number of structures in Wyoming have yielded relatively few productive fields of prime importance.

Certainly there is no excess production in sight in the Rocky Mountain region for 1924 and any unusual demand would call for either the further drilling up of Salt Creek or for the development of new fields, assuming that Colorado crude will not become a factor short of next year and then its being controlled within the requirements of the companies directly interested.

Gas Men Meet In Splendid Setting Of Cleveland Auditorium

By Lawrence E. Smith

STAFF REPRESENTATIVE

CLEVELAND, May 20.—The nineteenth annual convention of the Natural Gas Association of America opened yesterday in the Public Auditorium here. As is usual at these gatherings of the producers and distributors of natural gas and the manufacturers of the equipment which enables them to perform that function, the first day was given over almost exclusively to talking.

No odious or obvious comparisons between the natural gas business and the extensive conversation which is a pronounced feature of the conventions is invited, nor will it be tolerated. There is a logical reason why much verbal communication should be indulged in yearly. The natural gas men are silent and repressed as to speech throughout the year and when they gather with their kind, among friendly, sympathetic souls, the dammed up torrent of speech flows forth.

The Public Auditorium of Cleveland provides a splendid setting for this year's meeting. Exhibits are placed in the basement, which is splendidly lighted, and the sessions are being held on the main floor.

The exhibits this year are large and all the 175 member companies of the Natural Gas Supply Men, Inc., are represented either in exhibit space or by company men who are greeting their customers. Some heavy duty field equipment is on display—some of it new in design or in improvements which have been effected during the past year.

No formal program was arranged for Monday, the opening day. In the afternoon the Natural Gas Supply Men, Inc., held their annual meeting, which was purely routine in nature. The only elections on the board for that day were for five directors for a three-year term, succeeding the five whose terms expired this year. There was no opposition to the motion to transfer the five whose terms expired this year down to the bottom of the directorate, thus reelecting them for three years. These five are Fred A. Miller, of the S. R. Dresser Manufacturing Co.; T. C. Clifford, Pittsburgh Meter Co.; William McKee, Chaplin-Fulton Manufacturing Co.; E. P. Corey, Youngstown Sheet & Tube Co. and Larmour Adams, Metric Metal Works. The 15 directors will meet later and elect officers.

This association of supply men, which was incorporated during the past year, always does a great deal more than merely exhibit its members' equipment at the convention. It acts as host to the entire convention, providing lunch each day for all registered visitors and supplies the entertainment. Monday night at the annual smoker for the convention, held in the Hollenden Hotel they did themselves prouder than usual. A splendid vaudeville bill, boxing match and other features were provided and perhaps best of all, a good orchestra gave the large attendance a chance to sing. It is doubtful whether the home towns of the gas men allow them this privilege.

Corrin for President

Without pretending to powers of divination, it is herewith asserted that John B. Corrin, vice-president of the Hope Natural Gas Co., Pittsburgh, and at present vice-president of the Natural Gas Association, looks like the best bet for president of the association.

Mr. Corrin is a reluctant sort of man when it comes to accepting office other than in the company he serves and has imitated Caesar in pushing the crown aside in other years when the gas men sought to elect him. There were whispers today, however, that he has been persuaded to lead the gas men the coming year and Thursday afternoon will see this faint prediction borne out or proven to be ridiculous.

If the latter, your correspondent will remain in hiding for the next few months until the nation-wide storm of disapproval has blown over.

Tulsa, which lays some claims to being quite a natural gas town, is putting forth the biggest demonstration to land next year's convention. The citizenry of Tulsa have, according to W. G. (Bill) Long, been holding old-fashioned torchlight parades and passing strong resolutions for several months urging the gas men to look with favor upon their claims.

Mr. Long has been elected the chief standard bearer and he is certainly losing no time nor allowing any alfalfa to sprout under his feet. Gas men, wandering idly by Mr. Long's Robinson Packer Co. booth, are roughly seized and their arms are thrust into bands which tell the world they are for Tulsa.

Columbus, O., has some support from certain eastern men, but its claims are not being put forward in the vociferous way that Tulsa's are.

Among the important subjects for discussion on the floor of the convention are several relating to standardization and one of these, standard methods of testing gas for gasoline content, is of especially wide interest.

Standard Of New Jersey Income Fails To Keep Pace With Record Trade

By Roger B. Stafford

STAFF REPRESENTATIVE

CLEVELAND, May 17

THE year 1923 was better to the Standard Oil Co. of New Jersey than to many other oil companies, the annual financial report of the largest individual corporation in the oil industry shows.

Volume of business done by the New Jersey company last year was greater than in any other year but net profits were only approximately one third the net in 1920 yet greater than the net in 1922. This failure to keep pace with 1920 was caused by the decline in price of all petroleum products.

The company, according to the statement of Chairman A. C. Bedford did 24.5 per cent more gasoline business in 1923 than in 1922 but gross receipts from gasoline was 3.06 per cent less. In other words, taking the 1922 volume of trade and gross receipts as 100 each, the 1923 volume had an index figure of 124.5 while the receipts had an index number of 96.94. This represents a decline of 22.2 per cent in gasoline prices in 1923 from the 1922 prices.

The net surplus in 1923 of the parent company, subsidiaries and affiliated companies was $56,295,282 as against $46,242,436 in 1922. After dividends of $13,998,103 on the preferred stock in 1923, net profits were equivalent to $2.10 a share on the 20,083,968 shares of common stock outstanding at the end of the year. Dividends were $1 a share on the common.

ON JAN. 1, 1924 Standard Oil Co. of New Jersey common stock was in the hands of 25,634 individual holders and a few organizations. One year previous common stockholders numbered 14,111, an increase of 11,223 over the year, the company reports. The first of this year the preferred stocks rested with 39,643 holders as against 39,344 on Jan. 1, 1923.

The common stock was held by 14,920 men and 9,253 women. The preferred was held by 15,102 men and 21,942 women. Of all stockholders, 31,195 were women and 30,022 men.

At the termination of the employes' stock purchase plan the men will again predominate, the company announces, as of 12,928 subscribers only 597 are women.

At the time of the dissolution the company had 6078 stockholders.

Consolidated income accounts of Standard of New Jersey for last four years follow:

	1923	1922	1921	1920
Gross income	*$367,334,410	*$328,286,827	$478,392,951	$657,909,828
Costs and expenses	340,306,940	305,792,577	469,300,449	572,387,287
Balance	$ 27,027,470	$ 22,494,250	$ 9,092,502	$ 85,522,541
Other income	8,490,245	10,435,764	16,565,016	10,701,735
Total income	$ 35,517,715	$ 32,930,014	$ 25,657,518	$ 96,224,276
General expenses, taxes, depreciation	20,010,733	20,042,273	19,896,024	16,863,511
Balance	$ 15,506,982	$ 12,887,741	$ 5,761,494	$ 79,360,765
Dividends received from other than affiliated companies	.....	.....	1,742,504	2,400,464
Adjustments	.....	.....	.....	4,967,821
Surplus	$ 15,506,982	$ 12,887,741	$ 7,503,998	$ 86,729,050
Federal tax reserve	.....	.....	.....	14,106,843
Balance	$ 15,506,982	$ 12,887,741	$ 7,503,998	$ 72,622,207
Proportion of earnings of affiliated companies after federal taxes	40,788,300	33,354,695	26,341,932	91,839,202
Net Surplus	$ 56,295,282	$ 46,242,436	$ 33,845,930	$164,461,409

*Gross income from operations with all departmental transactions eliminated.

Consolidated balance sheets as of Dec. 31 for last five years follow:

ASSETS

	1923	1922	1921	1920	1919
Plant and equipment less depreciation	$ 464,765,468	$ 441,981,831	$ 431,569,324	$ 384,583,206	$312,273,130
Investments	158,356,076	134,777,894	131,257,552	111,441,549	100,621,982
Inventories	245,908,138	263,200,023	260,397,309	284,340,961	185,750,373
Accounts receivable	267,888,285	269,221,993	279,848,017	288,158,551	236,896,058
Cash	11,086,985	14,579,149	12,867,775	33,788,328	17,819,055
Total	$1,148,004,953	$1,123,760,890	$1,115,939,977	$1,102,312,595	$853,360,598

LIABILITIES

Preferred stock	$ 199,972,900	$ 199,972,900	$ 196,676,600	$ 196,676,600	$ 98,338,300
Common stock	502,099,200	498,587,125	98,879,325	98,338,300	98,338,300
Reserve for annuities	3,356,655	2,971,613	2,503,929	2,001,978	791,713
Accounts payable	204,855,636	205,612,235	217,391,252	183,834,314	157,005,383
Marine insurance reserve	3,921,993	3,253,146	2,578,663	412,989	594,341
Tax reserve	5,731,155	7,194,875	5,888,575	28,901,489	.....
Surplus	228,067,414	206,168,996	592,021,633	592,146,925	498,292,561
Total	$1,148,004,953	$1,123,760,890	$1,115,939,977	$1,102,312,595	$853,360,598

That the effects of last year's overproduction are still being felt is indicated in the following statement of Mr. Bedford to the stockholders:

"In the past three years the petroleum industry has experienced a cycle of overproduction in varying degree, reaching a climax in 1923, and which is not at the present time entirely a matter of history. The conditions arising from this situation of a continuous crude oil surplus have been logically a marked expansion in the consumption of petroleum products and a sustained tendency toward low market values.

"In 1923, the aggregate production of crude oil in the United States was 746,000,000 barrels, a daily average of 2,044,000 barrels, this being an increase of 34 per cent over 1922. Stocks of crude oil in the United States increased 258,000 barrels daily or 33 per cent while petroleum stocks other than crude increased 22 per cent. The production of crude oil by this company in both its foreign and domestic operations showed an increase of approximately 60 per cent over 1922. The company's stocks of crude oil increased 16 per cent and its petroleum stocks other than crude decreased 7 per cent.

Consumption Counterbalances

"The overproduction of crude was to some extent counterbalanced by the growth in consumption. The company's volume of turnover, in 1923, surpassed by a considerable margin any previous year in its history, its business as a whole being 20 per cent in excess of 1922, with its gasoline sales increasing 24.5 per cent over that year. Nevertheless, the general condition of diminishing prices for petroleum products restricted the gain in gross receipts from the whole business to 8 per cent, while the gross receipts from gasoline sales actually declined 3.06 per cent. Of the aggregate earnings of the company, less than $20,000,000, or under 36 per cent was derived from its domestic oil business accruing from its foreign subsidiaries, its fleet, and its subsidiaries not engaged in the oil business.

"In the presentation of the final results of the year, the precedent of 1922 has been followed in the elimination of all departmental transactions. The total earnings of the company in 1923, after deducting federal taxes, were $56,295,282; the gross assets at book value amounted to $1,184,004,953, and the surplus at the end of the year was $231,424,069, an increase in surplus account of $22,283,461. The dividends paid during the year were $34,011,821 ($13,998,103 on the preferred stock and $20,013,718 on the common).

"These results, nothwithstanding the adverse underlying conditions, reflect an

improvement over the previous year although the prevailing level of market prices was insufficient to provide a return upon the capital investment commensurate with the hazardous character of the business. In the opinion of the board, the general improvement and extension of the company's facilities and augmentation of resources which has occured, should be more satisfactorily demonstrated in a normal period."

More of 1923 Operations

Further light is thrown on the company's 1923 operations in a summary published recently in the Standard's house organ The Lamp. It was prepared by George H. Jones, vice-president and director, and presented originally before the annual conference of executives.

"Our marine department has had a busy year in bringing oil from California, Mexico and Gulf ports to the seaboard refineries and carrying refined products to all parts of the world," Mr Jones states.

"The fleet owned by the Standard of New Jersey is the largest privately owned fleet flying the American flag. It consists of 48 tankers of 544,000 deadweight tons; our subsidiaries, wherever located, own 42 tankers of 353,000 tons, the combined tonnage of Standard of New Jersey and its subsidiaries being 897,000 tons. On Dec. 31, we had under charter 21 tankers of 203,000 deadweight tons, so that we had 1,100,000 deadweight tons in operation. The tankers owned directly by the company and such tankers as it had under charter transported 58,106,000 barrels of crude oil and 18,381,000 barrels of refined oil of 50 gallons each, or a combined total of 79,989,000 barrels oi 42 gallons each.

"The operation of the Tuscarora Pipe Line was seriously curtailed during the year as we were bringing large shipments of oil from California. For the first time in its existence dividends were suspended. The Oklahoma and Standard of Louisiana lines were more active. In Oklahoma we laid 302 miles of pipe; in Louisiana and Arkansas 203 miles of pipe. The Humble Oil & Refining Co. in Texas laid 252 miles of pipe.

"The refineries suffered a very large inventory loss and throughout the last half of the year it was necessary to consume crude oil which cost more than could be obtained for the refined products Combining the totals at all points, our refineries increased their operations in the past year over the preceding year by 20 per cent.

"The Stndard development department reports a most successful year. We enter 1922 with a new cracking process of our own but the unfortunate possessor of $20,000,000 worth of Burton stills which more than suffice for our needs. We were in the same fix as a man wearing a rented suit of clothes, with a new suit of his own in his hand but no place to make the change. At the same time the patent situation was very complex. The past year brought us a satisfactory settlement of all these difficulties.

"The steady progress of fundamental research has shown us new vistas of possible better methods and products and the ensuing year promises to see some of these of major importance in actual use in our plants."

Export Business Increases

The Standard's export business increased 26 per cent during the year, when foreign markets showed a material improvement.

A comparison of the growth of the Standard in the last three years is shown in the property accounts of the balance sheets as of the end of 1920 and 1923:

	1923	1920
†Refinery—		
Real estate	$12,918,480	$10,552,859
Plant, equipment	106,609,775	72,503,120
Incomplete construction	3,482,379	11,310,533
†Marketing—		
Real estate	$ 3,975,997	$ 2,055,406
Plant, equipment	9,304,634	4,936,077
Incomplete construction	990,042	3,247,472
Floating equipment	49,424,249	55,739,877
Stable, Motor equipment	1,889,927	2,290,169
*Loan delivery equip	4,217,191	890,234
Iron barrels, cans, etc	378,151	1,058,777

*Probably includes tanks and pumps lent dealers.
†Before depreciation.

The real estate, plant and equipment of affiliated companies was carried on the books at $320,627,339 Dec. 31 as compared with $250,787,828 at the end of 1920.

The 1923 ivestments accounts is distributed as follows:

Stock in affiliated companies not distributed in balance sheet	$19,669,759
Stock in other companies	14,971,726
U. S. and other marketable securities	53,916,256
Concessions, exploitations, etc	1,424,174
Miscellaneous property	2,634,991
Stocks owned by affiliated cos	43,889,775
Securities owned by affiliated cos	21,849,394

Of the cash on hand, $4,144,170 was held by the Standard and $6,942,816 by affiliated companies.

Since the dissolution in 1911, Standard has paid out $335,991,888 in cash dividends, of which $53,205,685 has been on the preferred stock and $282,786,203 on the common. The stock dividend paid at the end of 1922 had a par value of $397,929,700, bringing the total dividends up to $733,921,588. Common stock dividends have been paid as follows:

1923	$ 20,013,718
1922 (stock)	397,929,700
1922	19,842,485
1921	19,701,910
1920	19,667,676
1919	19,667,676
1918	19,667,676
1917	19,676,676
1916	19,667,676
1915	19,667,676
1914	19,667,676
1913 (extra)	39,335,320
1913	19,667,676
1912	19,667,676
1911	6,883,686

Earnings on the common stock after depreciation, depletion, federal taxes and preferred stock dividends since the dissolution have been:

Year	Earnings	Rate
1923*†	$42,297,179	8.4%
1922*†	32,387,231	6.5%
1921*	20,078,568	20.3%
1920	154,135,888	156.0%
1919	76,434,786	77.7%
1918	57,918,658	58.9%
1917	80,765,941	82.1%
1916	70,792,059	71.9%
1915	60,777,243	61.8%
1914	31,457,634	31.9%
1913	45,691,869	46.4%
1912	35,107,887	35.6%

*On $25 stock.
†After 400% stock dividend.

Madison Jobber To Head Wisconsin Assn.

Staff Special

MILWAUKEE, May 15.—The Wisconsin Independent Oil Jobbers Association held its annual meeting here Wednesday, May 14, and elected R. E. Andrew, president of the Pennsylvania Oil Co., of Madison, Wis., to the chief office in the organization. As president he succeeds S. S. Cramer head of the Wadhams Oil Co., of Milwaukee. Bert Rentmeister, president of the Oconomowoc Oil Co. of Oconomowoc, succeeded himself as secretary. Sessions and lunch were held as usual at the Plankinton Hotel.

J. L. Murray, president of the Corn Belt Oil Co., of Bloomington, Ill., and president of the Illinois Petroleum Marketers Association, addressed the gathering on the importance of crankcase drainage. In his own business in Illinois and also among his competitors and fellow association members, Mr. Murray has built up a system of encouraging customers to renew their motor oil which has developed a vast amount of new gallonage. This, he points out, is only incidental to the saving the practice had brought about in the longevity of motor lives in his community.

When the Wisconsin jobbers assembled there was a distinct tendency on the part of a great many of the members to announce their intention to return to their respective offices the next day and cut the tank wagon price of gasoline about 2 cents.

Before the meeting adjourned, however news came of the export order of Navy gasoline that marked the upward turn in the market.

When Mr. Andrew became president T. B. Goodall, Beloit, was made vice president and five additional directors were elected as follows: S. D. Hastings, Barkhausen Oil Co., Green Bay, Wis.; S. S. Cramer, Wadhams Oil Co., Milwaukee; Tom Clark of Manitowoc; Erle Thompson of Oshkosh and Secretary Rentmeister.

Producers Association Approves Publicity

TULSA, May 17.—Approval was given the tentative plan for educating the public regarding oil by the executive committee of the Mid-Continent Oil & Gas Association at a special called meeting today.

Resolutions were adopted by the association authorizing its officers to devise a practical plan for the campaign and to cooperate with other organizations in the Mid-Continent which are devising similar plans.

The Association of Natural Gasoline Manufacturers approved the policy of wide publicity for the industry at its recent annual convention. The Western Petroleum Refiners Association is expected to take similar action in the near future.

Cromwell's First Gas Well Fire Resists Fighters 12½ Days

By A. F. Hinton

STAFF REPRESENTATIVE

TULSA, May 17

WHILE the Shaffer Oil & Refining Co. lost heavily financially in the burning of its gas well in the Cromwell field, Seminole county, it at least has the distinction of having provided the biggest gas well fire yet recorded in Oklahoma. The company does not do things by halves, so when it started out to have a gas well fire, it had a real one—a fire which taxed the ingenuity of the experts who were fighting it, and gave steady night-and-day employment to a large gang of men for 12½ days.

The fire was extinguished and the well again brought under control under the supervision and direction of C. O. Rison, expert driller of the U. S. Bureau of Mines, Bartlesville station in co-operation with Paul Jones, gas superintendent for the Shaffer Oil & Refining Co., and assisted by D. P. Wardwell, petroleum engineer of the U. S. Bureau of Mines. Mr. Rison is well known throughout the Mid-Continent field for his work in fighting wild gas wells, and has many notable achievements along this line to his credit.

The Shaffer gas well is known as the Reuben Johnson No. 1, located in the NW¼ NE¼ of 10-10-8, It is about a mile north of production in the Cromwell field proper. It is 2738 feet deep, having topped the gas sand at 2718, and was making 61,960,000 cubic feet of gas at the time the fire started. The 8¼-inch casing in this well was set at 2225½ feet, the remainder being open hole. The well had an open flow pressure of 30 pounds, and rock pressure of about 960 pounds. At the time of the fire, about 35 drilling wells were being supplied with gas from the well, as well as domestic users in the town of Cromwell.

The fire started at 3 p. m. April 23, and burned until 3:10 a. m., May 5. It was finally extinguished through the use of steam furnished by a battery of 10 boilers, but only after a large part of the gas flow had been diverted through 8¼ and 12½-inch lines laid to the mouth of the well with much difficulty, and at considerable danger to the workers engaged in the task. The work was done under a serious handicap, due to rainy weather and impassable roads, which rendered it almost impossible to transport needed material to the well.

Although other operators in the field responded generously to the Shaffer company's necessity of obtaining boilers to fight the fire, it was found impossible to assemble more than 10 at the well. The location is somewhat remote from the remainder of the field, and difficulties of hauling boilers at the time proved insurmountable. It is estimated that ordinarily one boiler is required for each two million feet of gas in snuffing out a fire, so about 30 boilers could have been used on this job, if they had been available.

Loss of material, property damage, and cost of labor and material for extinguishing the fire, are estimated at roundy $18,000. The derrick and all fittings were destroyed, while 12½ days of unremitting day and night labor were required before the fire was conquered. The loss of gas was much more severe. During the fire, approximately 774½ million cubic feet of gas either was burned or escaped into the air after the flow had been diverted. Estimating this at 10 cents per thousand cubic feet, value of this gas was $77,450. Of course, all the gas was not being sold, but the figures given represent the economic loss sustained.

C. O. Rison, of U. S. Bureau of Mines, fastening line to Christmas tree to pull it down. Man on ground is Paul Jones, gas superintendent for Shaffer Oil & Refining Co.

The fire was started by a spark caused when a rock or fragment was thrown from the well against some portion of the turnbuckle derrick. The well had bridged, it is believed, just below the master gate valve, and it was decided to open both valves wide and allow the well to blow and clean itself. The first rush of gas from the opened well was sufficient to lift the crownblock from the top of the derrick, and it fell. After blowing for 30 or 45 minutes, the well apparently had thoroughly cleaned itself, and the man who was working with the valves commenced closing the master gate. It was while he was engaged in doing this that the fire started. The valve worked hard, and he found it impossible to get it closed before he was forced to leave the scene by heat and by being bombarded by pieces of the derrick which was being rapidly consumed. The upper valve was wide open at the time.

The well was fitted up with the ordinary Christmas tree connections. Above the clamps there was a two-foot nipple of 8¼ inch pipe, a high-pressure master gate valve, a nipple, an 8¼ inch tee, another nipple, an upper gate valve, another clamp and a riser about 10 feet long. From the 8¼ inch tee, there was a 4-inch line through which gas was run to a regulator and hence to the field. The intense heat from the fire, which at first was burning only at top of the riser, soon loosened all fittings to such an extent that gas was escaping and igniting at several points around the valves and connections. The 4-inch line finally opened up at a point off the derrick floor, and gas escaping from this aperture immediately ignited, thus starting what amounted to a second fire. While flames from the original fire at the top of the 8-inch pipe were shooting straight up, those from the 4-inch line were deflected down toward the ground at about the edge of the derrick and back across the floor toward the upper gate valve, rendering approach more difficult and the main fire more inaccessible. The 4-inch line is believed to have opened up on account of the intense heat, although it may have been cracked when the crown block fell upon it.

The 4-inch line fire was the first objective in the attack, as it had to be extinguished before any work could be done around the well. It was found that this fire could be put out with steam, but would re-ignite immediately when steam was taken from it. It was therefore found necessary to keep this fire held back with steam constantly while preparations were under way for fighting the main blaze. The first attempt at this was to try to shoot the fire out by blowing off the 8-inch riser at a point about half way down from the top.

Placing the explosive was what might be called a ticklish job, without exaggerating or straying from the narrow path of veracity. Rison did it simply by climbing a ladder which was leaned against the riser. It sounds easy, but he was forced to undergo terrific heat, and took chances besides that the fire in the 4-inch line might break loose again, in which event

Shaffer gas well fire in Cromwell field, Seminole county, Okla. First diverter in place. Water is being played over diverter and pipe to counteract intense heat. Part of Christmas tree fittings can be seen at left.

he would probably have been burned to death in a moment. While in such close proximity to the burning well, water was constantly sprayed on him, but even with this precaution, he didn't suffer any from cold.

He succeeded in fastening about five pounds of 60 per cent dynamite around the pipe, and connected it up so that it could be fired with an electric spark. The explosion took place all right, but the attempt to blow the pipe off was a failure. The pipe was indented all around but apparently was not even cracked.

After the shot had failed, it was decided that the only thing to do was to break off the Christmas tree, so that the fire could be confined to the casing near the ground. To do this, Rison again climbed his ladder, and fastened a wire line around the riser, as shown in one of the photographs accompanying this article. The other intrepid worker who is shown in the picture holding the line on the ground, is Paul Jones. Through the use of chain hoists fastened to trees, the pipe was alternately jerked back and forth until the lowest 8-inch nipple was jumped out of the collar, and the entire Christmas tree fell to the ground.

Again shooting the fire over the mouth of the casing was considered, but it was decided not to try it. Investigation had shown that the casing was loose in the collar above the clamps, and it was feared that a shot might result in dropping the entire string of casing-down into the hole. It was found afterward that the casing settled three feet down in the hole during the fire, probably due to the blocking under the spider in the cellar having been burned.

With the fire going full blast from the mouth of the casing, the next thing to do was to divert a sufficient quantity of gas so that the 10 boilers could cope with the remainder. To do this, a welder was brought on the job, and a diverter was fabricated. A short piece of 12½ inch casing was welded on to a line of 8¼, the connection being made in the form of a swage. A 15½ inch casing shoe was then welded on the end of the 12½, at such an angle that it could be placed over the mouth of the casing. A ring was placed over the 12½ and welded to the top of it, to serve as a means of fastening the diverter down after it had been placed in position.

The diverter was brought into position by the use of chain hoists and was moved forward until the shoe was over the casing, when it was lowered over it. By using snatch blocks fastened to the ring described above and to clamps, a line was conducted to another hoist, and by this means the diverter was forced down over the casing and held in position. In order to fasten the snatch block to the clamps, it was necessary to go down into the inferno that had been the cellar. Again Rison was the venturesome one. Gas diverted by this arrangement was conducted through two joints of 8-inch, and allowed to blow into the air. A gate valve was placed on the end of the pipe to shut off the gas in case it became ignited. A gauge showed that 26 million feet of gas was diverted in this manner.

With about 36 million feet of gas still burning at the mouth of the well, it was necessary to divert still more of the gas before the remainder could be extinguished with steam. To do this taxed the ingenuity of the workers, but it was accomplished through careful measurements and calculations, and the efficient work of the welder. A fitting was designed which would at the same time go over the casing below the first diverter, and fit over the diverter itself. It was provided with wing walls which allowed steam to be injected directly into it, thus forcing the gas back through the pipe to which this second diverter was connected.

It is estimated that the second diverter accounted for an additional 30 million feet of gas. At any rate, steam from the 10 boilers was turned on what was left of the fire, and in ten minutes after the second diverter had been placed in position, the fire was out altogether. As far as is known, this is the first time a system of double diverters has ever been used in Oklahoma in fighting a gas well fire.

The well was saved, and is again delivering gas through the company's lines. It is believed that it is still good for 60 million cubic feet, or about as much as it made before the fire. A derrick was erected while the fire was in progress, and was skidded over the hole when the fire had been extinguished. In four days all connections had been replaced and the well was again in service.

Closed Season For Gas Well Fires

TULSA, May 17.—C. O. Rison, of Muskogee, expert driller of the U. S. Bureau of Mines, is going to jump into his Franklin touring car early next week and depart for parts unknown on a two weeks' vacation trip. All operators planning gas well fires are requested to postpone them until his return.

General view after both diverters had been placed and fire extinguished. New derrick to go over hole shows in background. Corrugated iron shield to protect workers also may be seen in background.

Tank Distances To Be Considered By Special Committee

Staff Special

ATLANTIC CITY, May 15.

FOR five hours before committee and general convention of the National Fire Protection Association here last week, representatives of the oil industry battled to have distances between tanks and adjoining property reduced below what fire protection engineers not connected with the oil industry wanted.

It was finally agreed by unanimous vote of the association to refer the subject to a special committee consisting of one man appointed by each of the following organizations: National Board of Fire Underwriters; the Factory Mutual Insurance organization; the Bureau of Explosives (Col. Dunn); the National Association of Fire Chiefs and the American Petroleum Institute. Present members of the Inflammable Liquids committee are barred.

That committee is to hear the question argued in detail and if it can reach a unanimous decision then that decision will be accepted by the executive committee of the N. F. P. A. as the decision of the convention. If it can't reach a unanimous decision the matter will have to go back to the original committee and possibly come up again at the next convention.

C. M. Goddard of Boston, one of the founders of the N. F. P. A. and one of the veterans in fire protection work in this country, who proposed this way out, said that he hoped all concerned would take the broadest view possible so as to make sure that the committee's decision could be unanimous. He said that even though the oil industry representatives might be right in their recommendations as to tank distances, they were so much less than the present regulations that the oil industry should consider most any reduction in old regulations as worth while progress toward those distances they seek.

W. R. Boyd, Jr., assistant secretary of the American Petroleum Institute, expressed the hearty approval of the oil industry for the proposed solution and seconded Mr. Goddard's proposal.

The fight came on regulations for the storage of fuel oil of 150 deg. F. flash and over but it was agreed to present to the special committee the whole subject of tank distances for crude oil and all petroleum products so as to have it cleaned up at one time.

The oil industry had been fighting for more than a year for a distance between fuel oil tanks and adjoining property which may be built upon of one tank diameter. The non-oil fire protection engineers on the committee wanted what amounted to two tank diameters from shell of the tank to property line. A year ago representatives of the National Board of Fire Underwriters represented on the inflammable liquids committee of the N. F. P. A. moved a compromise of one and a quarter tank diameters which was carried by a two to one vote.

This compromise came in connection with regulations on inflammable liquids containers. After being taken to the executive committee of the N. F. P. A. twice it was sustained each time but when it came to incorporating these distances in the fuel oil regulations this spring, the minority members of the inflammable liquids committee continued their objections with the result a special meeting was called at Atlantic City May 13. The committee reaffirmed its vote and the report went to the convention the next day with the minority members protesting.

The oil men attending the sessions as members of the inflammable liquids committee were W. R. Boyd, Jr. of the American Petroleum Institute; C. H. Haupt, chief engineer Standard Oil Co. of New Jersey; K. G. MacKenzie, chief chemist The Texas Co.; F. W. Fischer, formerly chief engineer of station construction, Sinclair Refining Co. and now sales manager Guarantee Liquid Measure Co., Rochester, Pa.; W. C. McTarnahan, Petroleum Heat & Power Co., New York, and W. C. Platt, NATIONAL PETROLEUM NEWS.

Oil men attending the committee hearing and representing the institute's committee on safety and fire protection engineering, were: W. S. Rogers, superintendent of terminals The Texas Co.; and F. W. Staley, fuel oil department The Texas Co., New York, Mr. Epps, fire protection engineer Tidewater Oil Co., New York; J. A. Watterson, chief engineer station construction Standard Oil Co. of Ohio, T. G. Toomey, New England Oil Refining Co., H. L. Shoemaker, engineering department Standard Oil Co. of New Jersey, Mr. McCarthy, in charge of fuel oil sales Sinclair Refining Co.

Those who presented the oil industry's case before the convention were Messrs. Haupt, MacKenzie, Epps and Boyd.

Truck Tank Conference May Spell Trouble

WASHINGTON, May 20.—Oil men who have large investment in truck and wagon tank equipment and manufacturers of tank trucks should make it a point to be present at the seventeenth annual conference on weights and measures to be held at the Bureau of Standards, Washington, May 26-29.

This conference, which is made up of the official sealers and weights and measures men of the various states, last year drew up a code of specifications and tolerances for truck and wagon tanks, which was tentatively adopted. The code contained some provisions for making the truck tank compartment a calibrated measuring unit, that would undoubtedly work great hardship on the industry and the manufacturers of such equipment, if adopted.

This year, the code is coming up again for consideration. All interested users and manufacturers are invited to be present and give the conference the benefit of their views.

If the users and manufacturers do not take advantage of that invitation and attend the meeting, it is likely that their absence or their silence will be taken as giving consent to the proposed program and the code may be adopted. It is easier to keep such a program from becoming effective than it is to abolish or change it after it has been put in effect.

It should be remembered, also, that the members of the conference are political office-holders with the office-holders slant on the oil industry. Also, that these men are in position to put into effect in their states the decisions arrived at in the conference and that is undoubtedly what they will do.

It will be well worth while attending the meeting to see what is going on and protest against anything being done that will injure the oil industry and the manufacturers of truck tanks.

P. S. Tarbox Resigns Ohio Valley Post

OIL CITY, PA., May 19.—P. S. Tarbox, for 7½ years general manager of the Ohio Valley Refining Co., St. Mary's, W. Va., will relinquish the managership May 31 to devote his entire time to the Independent Refining Co., Oil City, of which he has been manager for five years. Mr. Tarbox says he will retain his financial interest in the Ohio Valley Refinery and will continue on the board of directors.

A successor as general manager has not yet been selected but J. B. Northrup will continue as superintendent and A. M. Keister will still handle the sales. Business policies and products manufactured will not be changed, Mr. Tarbox says.

Mr. Tarbox has been in the oil business for more than 18 years, 11 of which he served with the Warren Refining Co. at Warren.

TULSA, May 15.—E. J. Neckerman, superintendent of the pipe department of the Youngstown Sheet & Tube Co., Youngstown, O., is making a trip of inspection over Oklahoma oil fields, guided by men of the Continental Supply Co.

Drill Shows New Burbank Tracts Not Up To Past Performance

TULSA, May 20.—First reports on a number of wells drilling in on the new tracts in Burbank indicate that no great amount of new production will be developed as compared with past performance of the field.

Most of the wells are showing for small initial production and only one or two flowed naturally. In one case the well did not flow even after a shot.

The Cosden interests, which purchased two tracts comprising the south half of 14-27-5, are completing four wells, all in the southwest quarter of the section. No. 3 is showing for about 700 barrels, having made 80 barrels in two hours and is still drilling in sand at 3050 feet. Cosden No. 6 is being shot with 3000 feet of oil in the hole, in sand from 3059 to 3086 feet. No. 7 was shot with 45 quarts and did not flow, in sand from 3055 to 3068 feet, where it went into black shale. It is now cleaning out to drill deeper. Cosden No. 12 got the sand at 2972 feet and is drilling at 30055 feet. It made 150 barrels in three hours and mudded up. It is now being agitated.

The Midland Oil Co., with two of the highest priced tracts figuring in the last sale, has a 400-barrel well in its No. 15, in the northeast corner of the northwest quarter of 14-27-5. This well was shot with 80 quarts in sand from 3045 to 3075 feet. Its No. 1 in the southeast corner of 13-27-5 swabbed 125 barrels in 24 hours after the hole was cleaned out following the shot.

Phillips Petroleum Co. No. 9, in the southwest quarter of 11-27-5, the farthest north million dollar tract, apparently is the best well of the lot, having made 750 barrels natural in sand from 2946 to 2998 feet. This lease is a north offset to the Midland's $1,990,000 tract.

On the east side of the new tracts the Twin State Oil Co. is completing two wells in the southwest quarter of 18-27-6. Its No. 13 is being shot after having made two small flows in sand from 2908 to 2965 feet and its No. 14 has 1800 feet of oil in the hole and is also being shot, in sand from 2905 to 2958 feet In the next tract east of this the Kewanee Oil & Gas Co. is shooting its No. 1 in the southeast quarter of 18-27-6, which has 1600 feet of oil in the hole in sand from 2905 to 2959 feet. This company's No. 5, same quarter section, is swabbing 35 barrels daily after having been cleaned out following a shot.

Seeks U. S. Control For Helium Gas Lands

By Special Correspondent

WASHINGTON, May 19. — Representative Louis A. Frothingham of Massachusetts is endeavoring to get a special rule under which early action can be obtained in the house on his bill authorizing the government to acquire or lease all available helium gas producing lands for use of the army and navy in event of war.

If the house passes the legislation it will have to ask the appropriations committee for a $5,000,000 authorization in order to carry out the purposes of the act. Of this amount, the departments estimate $4,000,000 would be required to purchase and lease the gas lands and the remaining $1,000,000 to install pipe lines and pumping stations. As reported to the house the bill itself makes no provisions for an appropriation, since that authority can come only from the appropriations committee.

Mr. Frothingham does not anticipate any difficulty in getting the bill through the house at this session but a special rule is needed if it is to be passed in time to allow the senate to act. The only possible slip in carrying out the schedule may be the refusal of the appropriations committee to recommend the necessary funds.

In addition to authorizing the acquisition of helium producing lands, the Bureau of Mines is directed under the bill to conduct experiments with the non-flammable gas which is essential for the successful operation of army and navy dirigibles. At present, helium is found in only small quantities and there is great wastage in its production. How to eliminate this waste is one of the problems facing the government.

Star Opens Station

FORT WORTH, May 17.—The Star Refining Co. returned to the retailing of gasoline here today, with the opening of a new station in the downtown section. The Star company, a Fort Worth owned and operated institution formerly had a string of eight stations in this city, selling them out a year ago with the purpose of dealing only in wholesale gasoline. Decision was made recently to again distribute the Star plant's products under its own trade name, of "Pep" gasoline. It is understood that other stations may be opened.

Offer to Remove Billboards

DENVER, May 19.—The Continental Oil Co. which is one of the largest outdoors advertisers in the Rocky Mountain district, has submitted to the Colorado Mountain club a list of all its billboards and offered to remove any that may be offensive or obsruct the senic attractions of the highway.

The company's billboard contract expires on June 1 and a decision was desired before it renewed its agreement for the coming year. The company is said to have around $1,000,000 invested in billboard advertising.

Oil Commission Looks Into Shale Lands

By Special Correspondent

DENVER, May 19.—President Coolidge's special commission to advise him on a naval reserve policy was in Denver last week and spent most of its time in looking into the feasibility of the shale oil land reserves.

The government has a naval reserve embracing 42,000 acres in western Colorado, which is estimated to contain a minimum of recoverable oil of 100,000 barrels to the acre. Estimates by government experts place the total for Colorado, Wyoming and Utah at around 60,000,000,000 barrels.

The figures loom big, but as yet none of this oil is being recovered on a commercial basis. The government has been conducting experiments in devising extraction processes for several years and there have been extensive investigations by private interests and some of these have advanced their experiments to a point where they may be commercially feasible. The price of crude oil from wells must be higher than at present to allow such extraction operations to be carried on, however.

The commission is not expressing any opinions publicly before it makes its report to the president but those who were close to the members on their visits are confident that shale will play a part in the government's policy of providing oil for the future supply of the navy. It is pointed out that shale reserves do not deteriorate, and the oil will always be available when the country needs the supply, provided, processes for the recovery are sufficiently developed.

The possibilities of shale oil are, apparently, not as fully appreciated in the east as in the west. Some of the larger oil interests have been obtaining reserves for several years. The Union Oil Co. of California, for instance, has large reserves in western Colorado for which it has expended more than $1,000,000 in securing titles and putting them in shape for future requirements. The Midwest, the Empire Gas & Fuel and other well known companies are also fortified along that line.

In public addresses in Denver in recent months O. H. Shoup, former president of the Midwest, pointed out that the time will come when shale oil, because of the ability to control the output, will become a stabilizer for crude oil prices and prevent the recurrent feast and famine periods.

WASHINGTON, May 17.—During April the Geological Survey reported upon the structural relations of lands embraced in 647 applications for prospecting permits under the oil sections of the leasing act of February 25, 1920, thus bringing the number of such reports rendered since the passage of the act to 23,070. Over 700 such applications were pending in the survey April 30, 1924.

Hackney
MILWAUKEE

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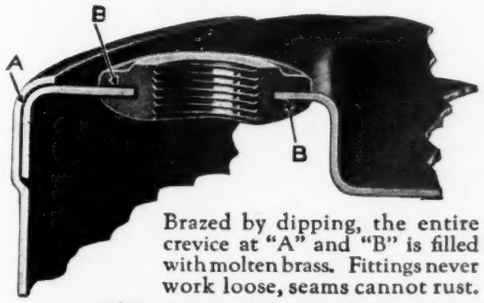
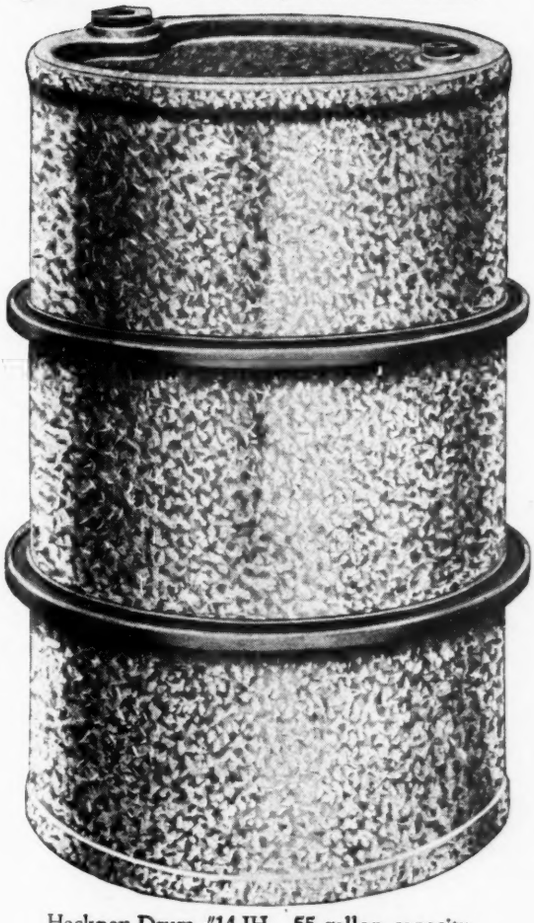


Brazed by dipping, the entire crevice at "A" and "B" is filled with molten brass. Fittings never work loose, seams cannot rust.



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Heads and openings brazed by dipping in molten brass. They can never leak, never work loose, never rust through—the contact area of the chime seam is over 8 times the secured area of a welded seam—the weakest point of some containers is the **strongest** point of HACKNEY DRUMS AND SEAMLESS BILGED BARRELS.

The construction of these vital points is shown in the detailed drawing. It has done much towards making Hackney Drums and Hackney Seamless Bilged Barrels the longest lived containers on the market. And with their other exclusive features they offer the buyer and shipper equipment that is unequaled for **safe transportation.**

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OIL FIELD SUPPLY TRADE NEWS

Pipe Orders Coming In Small Lots; Mills Operating 80 Per Cent

By Special Correspondent
PITTSBURGH, May 19

THE line pipe market activity has been confined to small lots, 50, 100 or 150 tons at a time. Occasionally a slightly larger tonnage of either line pipe or casing is ordered but action of larger lines continues to be deferred or held in abeyance. Recent cuts in crude oil prices may have a lot to do with this attitude on the part of oil companies.

The pipe trade in this vicinity does not know when the order by the McCorkle Pipe Line Co., placed with the National Supply Co., the jobber-subsidiary of the National Tube Co., for 155 miles of 10-inch and 280 miles of 8-inch, approximately 36,500 tons, will be shipped. This matter has dragged along now for many weeks, apparently, due to the matter of arranging satisfactory credit.

Deliveries from the pipe mills, at least from the majority of them, are being made almost as required by the oil country jobbers or the oil companies themselves, since mill stocks are well balanced on the popular sizes and the popular sizes are figuring to a large extent in current buying. Occasionally an odd size is ordered in casing or outside diameter pipe which has to be made up and deliveries are post-dated about three weeks. Operations are averaging around 80 per cent of capacity, although some pipe mills are running with but one buttweld furnace or one lapweld furnace out of commission. Steelmakers say if everything was as good as pipe, they'd be well satisfied.

A fair amount of blue annealed sheets as well as galvanized sheets are being ordered for use in connection with small bolted tanks or heavier tanks. These are quoted by the American Sheet & Tin Plate Co., at 3.00 cents and 5.00 cents a pound, base Pittsburgh, respectively. Some independent producers, however, are maintaining levels about $4 per ton below those or 2.80 and 4.80 cents, base Pittsburgh respectively and occasionally a maker will quote still lower or 2.75 and 4.75 cents, respectively.

Oil well supply manufacturers are continuing to send in their specifications on forging billet contracts, placed some time ago at $45, Pittsburgh. Some concessions have appeared under that figure—about $2 per ton. No new inquiries are out and new orders are scarce.

In connection with plate, a fair degree of activity continues to be noted from week to week but because many shops need plate business, prices are weak. An oil company in the New York territory bought 185 tons of plates at less than 2.00 cents a pound, base Pittsburgh, possibly 1.95 cents and had several quotations of 2.00 cents, whereas the regular market is supposed to be 2.25 cents, base Pittsburgh. The Standard Oil Co., of Louisiana which inquired for 5000 tons of plates for Baton Rouge, La., has withdrawn that inquiry and the tonnage may not be purchased. An inquiry is out in New York, however, from an oil company which wants a tonnage of boiler and firebox steel.

The Phillips Petroleum Co., is in the market for 200 to 400 tank cars which will involve a sizable lot of plates.

The Vulcan Oil & Refining Co., of Cincinnati, has placed a contract with the Stacey Manufacturing Co., Cincinnati, for four oil storage tanks of 4000-gallon capacity each.

The Glen Nina Tank Line has awarded the contract for repairing 36 of its tank cars to the Warren Steel Car Co.

Orders And Inquiries

A recent feature of the tin plate market is the inquiry of the Nippon Oil Co., Japan, through a New York house for 66,000 base boxes. While the domestic market has been opened for the third quarter at the unchanged level of $5.50 per base box, 100 pounds, Pittsburgh, this lot for export to Japan will go at a lower figure since on an inquiry for 4000 boxes recently received from the Japanese government railways, prices named figured back to 5.15 or $5.20, per base box Pittsburgh, due to the competition of Welsh makers.

In river shipping circles out of Pittsburgh, it is reported that one of the larger Independent oil companies is to deliver gasoline to the Pittsburgh district by barges from New Orleans in specially constructed steel barges. It is assumed that the gasoline is to be refined from Mexican or California crude oil.

The Standard Oil Co., of Indiana, 910 South Michigan av., Chicago, is planning a 4 or 5-story reinforced concrete warehouse to be erected at Ninth street, S. E., Mason City, Iowa. It will cost approximately $100,000.

The Lockwood Oil Co., Racine, Wis., is to build a branch warehouse and tank storage plant at Burlington, Wis., at a cost of $25,000; five 15,000-gallon tanks will be purchased. F. A. Lockwood is president and general manager.

The Lone Star Tank Car Co., Wichita Falls, Tex., plans the construction of a plant for building tank cars as well as for the general fabrication of plates.

The Gulf Refining Co., Widener building, Philadelphia, recently purchased 18 acres at Penrose and Province roads and will have plans drawn at an early date for a new storage and distributing works to occupy a portion of the property. It is estimated the expansion will cost about $100,000 with equipment.

The Standard Oil Co., of Kansas, has awarded the general contract for a 1-story and basement storage and distributing plant at Salina, Kan., to cost $50,000, to the Eberhardt Construction Co. Additional units are to be erected at later dates.

• The Phillips Petroleum Co., Ranger, Tex., has ordered plans prepared for a gasoline plant near Eastland, Tex. With machinery, this will cost approximately $150,000.

The Pure Oil Co., Pure Oil building, Columbus, O., recently applied to the City Commission at Pensacola, Fla., for permission to build and operate a local oil storage and distributing plant with a capacity of 1,500,000 gallons. It will cost $200,000 with equipment.

TULSA, May 16.—The ninth annual convention of the National Association of Purchasing Agents, which will be held in Boston, Mass., May 19 to 24, will be attended by a number of Tulsans. Those leaving this morning include: O. V. Borden, secretary, Tulsa Purchasing Agents association; A. C. Branson, purchaser, Phillips Petroleum Co.; Bob Bradshaw, D. D. Wertzberger Co.; G. M. Coulter, Norval & Dial; C. A. McNamara, Sinclair Oil & Gas Co.; George C. Pohler, Cosden & Co.; F. W. Robertson, Skelly Oil Co.; Claud M. Murray, Murray Tool & Supply Co.; H. A. Woodard, Sinclair Pipe Line Co.; Walter Miller, Marland Refining Co. Ponca City; W. H. O'Connor, Marland Refining Co., Ponca City; G. A. Tompson, Empire Companies, Bartlesville.

TULSA, May 17.—Oil Well Supply Co. is putting in a store at Texon, Reagan county, Texas, to serve the Big Lake field.

Burbank Declines, New Wells Small; Stroud-Cromwell Promising

By A. F. Hinton
STAFF REPRESENTATIVE

TULSA, May 17

PRINCIPAL events of the past week included a further rapid decline of production in the Burbank field, coincident with the bringing in of several wells on recently-acquired tracts, some of which came in with disappointingly small production; rapid rise to important status from a production standpoint of the Stroud field, and the completion of another large well in the fast developing Cromwell field, Seminole county.

The crude price situation remains as it was last week. The Magnolia is standing pat on its reductions, but, aside from the Humble Oil & Refining Co., which followed suit, nobody apparently is paying much attention to the new scale of prices. No action of a similar nature has been taken by any other major purchaser in the Mid-Continent district and the feeling has become general that the Prairie has no desire to reduce crude prices at this time.

Producers in Oklahoma generally refuse to become alarmed about the present situation. They cannot get away from the fact that, from a production standpoint, the industry is in a much stronger position than at this time last year, for instance, and the necessity for a general shut-down of drilling, if such a necessity exists, evidently has not been taken seriously by them. At least, investigation fails to disclose that there has been any movement toward such action, nor has there been any great amount of discussion of it.

Oklahoma's production again showed a decline the past week, although only a small one, and the state is now estimated to be producing 412 560 barrels daily. Burbank fell off 4415 barrels in daily average, going down to 86.905 barrels, its lowest mark so far in 1924, and bearing out our predictions that its production would be down to 85,000 barrels before groups of new wells began to come in on the new acreage. The large decline at Burbank has been offset to considerable degree, however, by gains in younger fields, such as Stroud and Cromwell, which have reported a number of new wells in the past two weeks and are getting into the class of important fields.

Burbank Showing Disappointing

Nine wells have so far been brought in at Burbank on leases acquired at the sale of March 18 and 19, and their average initial production has been little better than 300 barrels. It begins to appear that the field's gas pressure has been dissipated to such an extent, and these new leases have been subjected to drainage for so long, that wells on them will fall far short of the usual Burbank performance. Some of the leases that sold for upward of a million and a half dollars, therefore, may be a long time paying out.

Midland Oil Co., subsidiary of the Empire, which spent the most money at the recent sale, has drilled in three wells on its new acreage, one on the record-breaking $1,990,000 lease, and two on the other tract, for which it paid $1,580,000. On the highest-priced tract, comprising the NW¼ 14-27-5, the company's No. 15 apparently is a small well, having made only 30 barrels the first hour, after an 80-quart shot, this being the most recent report available on it at this time. This well got the sand from 3045 to 3077 feet, and showed for only 12 barrels initial production before the shot.

The same company's No. 4, in the SE¼ of 13, reported last week as having won the race for the first completion on the new leases, is making about 540 barrels at present. On this lease, the company also brought in its No. 1, a half-mile east of No. 4, or in the SEc SW¼ of 13. This well filled up 1200 feet with oil in sand from 2957 to 2973 feet, and after a shot of 80 quarts, the hole bridged, and no further reports as to its production have been received. It probably is a smaller well than No. 4.

Phillips Petroleum Co. has drilled in one well so far on its new lease in the SW¼ of 11-27-5, for which it paid $1,765,000. Its No. 1, in the southwest corner of the tract, is making 565 barrels after a shot of 100 quarts, in sand from 2999 to 3046 feet. This well was good for about 530 barrels natural, the shot not helping it very much. It offsets the northwest corner of the Midland's highest-priced tract.

Prairie Has Two Wells

The Prairie Oil & Gas Co., which paid $1,825.000 for the SW¼ of 13-27-5, has two fair wells, one making about 700 barrels and the other 300 barrels. Its No. 12 was the first one in, and incidentally was the first well spudded after the sale; it got the sand from 2930 to 2978 feet and is the smaller of the two wells referred to. The Prairie's No. 1, in the southwest corner of the lease, was shot with 90 quarts in sand from 2920 to 2981 feet, and after making 115 barrels the first hour, has settled to 740 barrels daily.

Along the east end of the row of recently sold leases, the Twin State Oil Co. drilled in two wells on the SW¼ of 18-27-5, for which it bid $605,000. Its No. 12 made 300 barrels the first 22 hours in sand from 2882 to 2963 feet, while its No. 3 was shot in sand from 2905 to 2968 feet, and the hold bridged. Since then the well has not been put on production, and evidently will make no more than a small producer. Kewanee Oil & Gas Co., which bought the SE¼ of 18, adjoining the Twin State on the east, is also drilling in a well on its new lease.

Rumor has it that another Osage sale will be held along about the last of

Oklahoma and Kansas Estimated Daily Average Production

Oklahoma	May 17	May 10
Bristow	52,675	52,350
Burbank	86 905	91,320
Cushing	23,700	23,650
Healdton	16,440	16,500
Hewitt	19.825	19,970
Tonkawa	35,275	35,405
Osage, except Burbank	42.800	42.450
Wewoka	6,960	6,325
Oklahoma, general	127,980	126,450
Total	412,560	414,420
Decrease		1,860

Kansas	May 17	May 10
Augusta-Douglass	3,635	3,650
Blankenship District	3,075	3,050
Elbing-Peabody	7,970	8,000
El Dorado	15,620	15,540
Florence District	3,085	3,100
Fox-Bush	4,065	4,050
Greenwood County	23,100	23,125
Leon & Weaver	1,400	1,400
Kansas, general	10,110	10,300
Total	72,060	72,215
Decrease		155

June or the first of July, unless the crude oil market has gone down in the meantime. Unless future wells show up much better than those already drilled on the new leases, it does not appear probable that there will be many million-dollar battles for possession of tracts put up at the next sale. Results of drilling by Cosden Oil & Gas Co. on its two high-priced tracts comprising the south half of 14-27-5 will have considerable effect on the price received for the adjoining lease in the NE¼ of the same section, which is still unsold, and which looks to be the best remaining unleased tract. None of Cosden's wells has been drilled in as yet, although there are 32 of them drilling on the two quarter-sections.

Burbank's daily average the past week was 86,905 barrels from 1386 wells, a decline of 4415 barrels and an increase of 10 wells. Out of this amount, the Osage side of the field produced 55,980 barrels from 1206 wells, while the Kay county extension accounted for 30,925 barrels from 180 wells. For the entire field, average production per well is approximately 62.5 barrels. In the field at present, 211 operations are under way, including 11 locations, 17 rigs, 182 drilling, and one shut down. About 160 of the drilling wells are located on tracts acquired at the last sale.

Another Big Well at Cromwell

Development work is proceeding full speed ahead in the Cromwell field, Seminole county, and its production is now better than 12,000 barrels daily, from 12 wells, a neat average of exactly 1000 barrels per well. During the past week, Amerada Petroleum Corp. drilled in its first well in the field, and it is now making 4125 barrels daily. This well is the No. 1 Bruner, and is located in the NEc NE¼ SE¼ of 16-10-8, on the company's 40-acre lease. It is a quarter mile south of the Hoffer well in the NEc SE¼ NE¼ of the same section, heretofore the field's banner well. The Hoffer well is still making around 3200 barrels daily. The Amerada well got the sand from 3505 to 3525 feet, and came in making 150 barrels an hour. Its production steadily increased as the sand was penetrated, making the following record: May 12, 2930 barrels; May 13, 3472 barrels; May 14, 4125 barrels. This was its peak figure, and it has been declining slowly since that time.

The second gas well fire in Cromwell was that of the H. F. Wilcox Oil & Gas Co.'s No. 2 O'Neal, in the SWc SE¼ SW¼ of 15-10-8, which was being drilled in as the field's thirteenth well. When drilled to 3408 feet the well started making two million feet of gas, which increased to 30 million at 3414 feet. This gas became ignited in some way, and for a time made a spectacular fire. It was extinguished in short order, however, by exploding a shot over the mouth of the well, a shooter having gone to the scene in an airplane from Tulsa. The well will be drilled in as soon as it can be gotten back in shape.

Carter Oil Co. is starting three wells in Cromwell, having completed rig for its No. 1 Brown, in the SWc NE¼ SW¼ of 10-10-8, and building rig for No. 1 Little, in the NWc SW¼ NE¼ of the same section. It has a rig up for its No. 2 Yarhola, in the SWc NE¼ SW¼ of 22-10-8, in the southern part of the field.

Stroud Field Producing 18,000 Barrels

The twelfth producing well completed in the Stroud field, Lincoln-Creek counties, was the Amerada Petroleum Corp. No. 4 Lewis, on lot 6 of Section 12-14-6,

Completions In Oklahoma And Kansas Week Ending May 17, 1924

OKLAHOMA

Beckham County

Company	Well No.	Location	Depth	Initial Production
Magnolia	1	SWc 14-9N-23W	2620–2682	17M

Carter County

Company	Well No.	Location	Depth	Initial Production
Skelly	1	C NE SW NW 23-2S-3W	2153–2179	400
Magnolia	3	C NE SW SW 24-2-3W	2369–2375	200
Magnolia	5	SEc NE NW NW 24-2-3W	2375–2380	250
Magnolia	3	C NE NE NE 26-2-3W	2505–2525	150
Humble	1	C SW NW SE 30-2-2W	3095–3113	60
Schermerhorn et al	2	C NE NE SW 5-3-2W	3113–3121	150
Amster-Franklin	3-A	C NW SE SE 24-2-3W	T.D.2535	Dry
Magnolia	1	C SW NW NE 30-2S-2W	T.D.3445	Dry
Healdton	2	C NE NW SE 31-2-2W	T.D.2951	Dry
Cotton Belt	10	SWc NW NW NW 15-4S-2W	T.D.2054	Dry

Creek County

Company	Well No.	Location	Depth	Initial Production
Roland	1	SWc SE NE 25-17-8E	2670–2705	20M
Olean	1	NWc NW 5-16-8E	3462–3496 OWD	720
Peters	1	SEc SW NW 22-16-8E	3127–3134	125
Magnolia	1	SWc SW SW NE 6-15-7E	3625–3655 OWD	20M
Ryan Cons	1	SEc NE NE 25-15-7E	3322–3325	4M
Roxana	1	SWc 6-14-7E	4124–4158	750
Carter	1	NEc SW SE 31-17-9E	2567–2600	61
Empire	1	NEc SW 31-15-10E	2795–2802	80
Richardson et al	1	NWc NE NW 10-19-9E	T.D.2841	Dry
Johnson et al	1	SEc NE 5-15-9E	T.D.3583 OWD	Dry

Hughes County

Company	Well No.	Location	Depth	Initial Production
Arkansas Fuel	1	C SE SE NE 18-9-9E	3100–3102	1476

Jackson County

Company	Well No.	Location	Depth	Initial Production
Douglas	1	NWc SW SE 20-3N-20W	T.D.3765	Dry

Kay County

Company	Well No.	Location	Depth	Initial Production
McCaskey-Wentz	34	SEc NE SW 34-25-1W	2180–2185 OWD	15

Lincoln County

Company	Well No.	Location	Depth	Initial Production
Amerada	1	NWc E½ NE 12-14-6E	4112–4122	2710

Noble County

Company	Well No.	Location	Depth	Initial Production
Gypsy	75	C NL S½ NW 2-24-1W	2192–2211 OWD	150
Comar	22	CEL W½ E½ SW 2-24-1W	2540–2591	45
Healdton	12-B	NWc SW NW NW 11-24-1W	2096–2108	150
Mid-Co	12	C NE NE SW 15-23-2W	2702–2710 OWD	30

Okfuskee County

Company	Well No.	Location	Depth	Initial Production
Independent et al	1	C NE SE NW 30-11-10E	3160–3165	80M
C. R. Spinney	1	SWc NW NE 3-11-11E	2660–2665	530
Moffett et al	1	CWL NW NE 30-11-11E	565– 566	2M
Blakely et al	1	SWc SE NW 25-12-10E	T.D.3689	Dry

Okmulgee County

Company	Well No.	Location	Depth	Initial Production
Tidal	1	NWc SW SE 28-15-12E	2168–2183 OWD	1M
Pulaski	3	CNL SE SW 22-16-12E	2526–2532	500
Anglo-Tex	1	SWc NW 31-16-14E	1712–1728	30
H. C. Wilson	1	NEc SW 3-15-11E	2145–2153	30
C. F. Noble	2	SWc NE 19-15-12E	T.D.1750	Dry
Gardner-Summers	3	SWc NW SW 14-14-12E	T.D.2170	Dry
Barbara	1	NWc NW NW 3-13-12E	T.D.2360	Dry
Aztec et al	6	NEc NW NE SW 6-11-12E	T.D.2031	Dry
Lowry	12	CEL SW NE 26-13-14E	2024–2033	35
Enterprise	5-A	NEc SW NW 36-14-14E	T.D.1470 OWD	Dry

Osage County

Company	Well No.	Location	Depth	Initial Production
Barnsdall	24	CWL E½ W½ NW 9-20-12E	2125–2157	20
Barnsdall	17	NWc 32-21-12E	1882–1938	1440
Tidal Osage	21	SEc NE 32-22-10E	1724–1754	30
Sinclair	17	NEc SE 32-22-10E	1770–1872	50
Sinclair	18	CNL SE 32-22-10	1796–1924	30
Tidal Osage	37	SWc NW SW NW 34-22-10	2329–2368	25
A. G. Oliphant	2	NWc NE NW SE 32-24-9E	1162–1192	21
Marland	1	NEc 33-25-8E	2685–2687	960
New England	9	C NE SW SW 19-25-9E	2216–2246	50
Minnehoma	1	SWc SE 11-26-8E	2195–2247	40
Osage Dev	37	CWLE½ W½ NW35-29-11E	978–1010	40
Osage Arrow	15	NWc NE 14-22-10E	T.D.2370	Dry
Owen Osage	290	NEc SW SW 18-22-11	T.D.1838	Dry
Owen Osage	279	SWc NE NW 18-23-11	T.D.2192	Dry

Osage—Burbank

Company	Well No.	Location	Depth	Initial Production
Roxana	6	C NE SE NE 4-27-5E	2861–2916	500
Sinclair	3	C NE SE SW 9-27-5	3020–3030	350
Phillips-Delmar	16	C NW SE SE 10-27-5	2984–3031	300
Midland-Delmar	4	SWc SE 13-27-5	2925–2976	956
Roxana	4	NWc NE 4-27-5	T.D.1710	Dry
Geo. Boles	3	C SE NE NW 4-27-5	T.D.3009	Dry
Geo. Boles	4	NEc NW 4-27-5	T.D.3440	Dry
Waite-Phillips	1	SEc SW 33-28-5	T.D.1980	Dry
Waite-Phillips	1	SEc SW 34-28-5	T.D.2977	Dry

Pawnee County

Company	Well No.	Location	Depth	Initial Production
Josey	4	NEc SE SE 21-20-6E	3116–3139	250
Johnson O. & R	1	SEc SW NE 17-20-7E	2651–2681	35
Mutual	1	CWL SW SW SE 25-20-9E	1951–1985	40
Mutual	13	SWc SE NE NW 25-20-9E	1111–1132	15

Roger Mills County

Company	Well No.	Location	Depth	Initial Production
Martin et al	1	C NW SE 32-12-26W	T.D. 460	Dry

Seminole County

Company	Well No.	Location	Depth	Initial Production
Cosden	1	SEc SW NE 15-10-8E	3380–3388 OWD	7M
Tidal	1	SEc NE 21-10-8E	3475–3486	700
McMan	1	SWc NW 22-10-8E	3449–3466	1411

Stephens County

Company	Well No.	Location	Depth	Initial Production
Suppington et al	1	SEc NW NW 2-2N-5W	1212–2114 OWD	9M
Smith-Law	2	NWc SE NE 31-1N-8W	2092–2098	15
Magnolia	17	C NW SW NE 33-1-8W	2617–2621	165
C. & O. Drg. Co	3	NEc NW NW 30-1N-8W	T.D.2365 OWD	Dry

Tillman County

Company	Well No.	Location	Depth	Initial Production
Luffborough et al	1	SWc NE SW NW 23-2S-17W	T.D.3200	Dry

Tulsa County

Company	Well No.	Location	Depth	Initial Production
Fan Elva	3	SWc SE SE 18-19-10E	2123–2138	35
Westland-Munn	2	CNL NE NW SW 4-19-12	1986–1995	20
Obbins-Webber	5	C SE SW 1-18-12E	1998–2020 OWD	65
Bredahl et al	1	SEc SW 4-19-10E	T.D.2715	Dry

Wagner County

Company	Well No.	Location	Depth	Initial Production
Martin-Hamilton	5	NEc NW SE SE 4-17-16E	650– 655	2M
Webber	4	NEc NW 10-17-16	748– 722 OWD	20
A. H. Carder	2	SEc SW NW 11-17-16	763– 788	15
Sewell-Martin	6	CWL NE NW NW 15-17-16	T.D. 810	Dry
Vincent	1-B	SEc SW 7-17-17	T.D.1205	Dry

KANSAS

Greenwood County

Company	Well No.	Location	Depth	Initial Production
Simmons-Burke	2	NWc NE NW 19-22-11E	2061–2092	40
Orlando	1	SEc NW SW 4-24-10	T.D.4800	Dry
Hutton et al	1	SEc SW 5-25-11	T.D.2021	Dry

Drilling Operations In Oklahoma, Kansas And North Texas

	May 10 Loc.	Rigs	Week Ending Drg.	S.D.	Total	May 17 Loc.	Rigs	Drg.	S.D.	Total
OKLAHOMA										
Burbank	11	24	178	6	219	11	17	182	1	211
Other Osage	19	29	135	5	188	21	29	137	3	190
Bristow-Cushing	16	30	126	26	198	10	35	124	32	201
N. Oklahoma	10	13	49	54	126	9	8	59	53	129
S. Oklahoma	5	26	213	82	326	11	27	199	81	318
Muskogee	..	15	61	32	108	..	15	62	39	116
Okmulgee-Bristow	1	88	120	41	250	1	92	133	40	266
Tonkawa	4	22	44	5	75	1	11	58	5	75
Wewoka	12	31	163	21	227	5	32	175	20	252
Total Oklahoma	78	278	1089	272	1717	69	266	1129	274	1738
KANSAS	46	92	155	66	359	46	92	115	66	319
NORTH OKLAHOMA										
Eastland County	..	3	31	8	42	..	4	32	8	44
Stephens County	..	25	64	23	112	..	37	63	24	129
Texas Panhandle	..	4	20	13	37	..	4	20	13	37
Mexia (Powell)	..	5	50	7	62	..	19	56	6	81
E. Texas Wildcats	..	25	27	45	97	..	25	24	44	93
W. Texas Wildcats	..	86	205	87	378	..	91	229	79	399
Total N. Texas	0	148	397	183	728	0	180	429	174	783
GRAND TOTAL	124	518	1641	521	2804	115	538	1673	514	2840

which started off at the rate of 40 barrels an hour when drilled to total depth of 4107 feet, after topping the sand at 4102 feet. This well brought the total output of the field up to about 18,200 barrels. With 12 wells producing, this is an average of about 1520 barrels per well.

In this field, Roxana Petroleum Corp. has about 5800 barrels daily production from five wells, J. A. Hull Co. has 3290 barrels from three wells, Union Petroleum & Supply Co., 3860 barrels from two wells, and Amerada Petroleum Corp., 3570 barrels from two wells. Roxana Petroleum Corp. drilled in its No. 2 Jackson, in the SEc NE¼ NE¼ of 11-14-6, and it is good for about 300 barrels daily. This well topped the upper sand at 4090 feet, and had 2000 feet of heavy oil in the hole at 4125 feet. The big pay was topped at 4133 feet.

Wells Completed

In Oklahoma, during the week just closed, 89 wells were completed, of which 52 were oil wells, 10 were gas wells, and 27 were dry holes. This compares with last week's figures of 88 completions, divided 61 oil wells, six gas wells, and 21 dry holes. In this week's compilation, 10 wells are credited to Burbank, of which five are dry holes, this being the greatest number of Burbank failures ever recorded at one time. Several of these wells were abandoned at shallow depths when adjacent developments indicated that they had nothing to hope for in the way of production.

Although lesser in number than last week, the 52 oil wells completed in the past week had a larger total initial production, by more than 1000 barrels. Their combined initial was 16,349 barrels, an average of 314.4 barrels per well, as compared with 15,009 barrels of new production from 61 wells last week, which was a per well average of 246.0 barrels. Completions reported from Kansas this week totaled only three, of which one was an oil well and two dry holes. Last week, there were 15 completions divided nine oil wells, one gas well and five dry holes.

Another considerable increase in field operations was recorded during the past week, drilling wells jumping from 1089 to 1129, and total operations increasing from 1717 to 1738. The largest increase in drilling wells was at Tonkawa, where a number of wells got under way for the deep sand. In this field, there are now 58 wells drilling, as compared with 44 last week, but rigs fell off from 22 to 11. Burbank registered a small increase in drilling wells, going from 178 to 182, while the Okmulgee-Bristow district increased from 120 to 133.

Field operations in the various districts of Oklahoma, Kansas and north Texas are shown in the accompanying table. They indicate an increase of 32 in drilling wells over the entire district, while total operations increased from 2804 to 2840 during the week under review.

Graham Field Extension Wells

In the Graham field, Carter county, the first of the new wells to come in in the territory between the field proper and the Skelly extension well in section 23, is the Fitzgerald-Hinkle-Westhiemer No. 2 Williams, in the c SE¼ SE¼ NW¼ of 23-2s-3w. This well is seven feet in the sand topped at 2136 feet, and is flowing between 500 and 600 barrels, with the tools still in the hole. This well is a quarter-mile southeast of the Skelly well which extended the field a mile northwest, and three-quarters of a mile northwest of present production in the field.

Magnolia Petroleum Co. No. 2 Williams, in the c SW¼ SW¼ NE¼ of the same section, an east offset to the Fitzgerald well, is flowing 400 barrels daily, at 16 feet in sand topped at 2030 feet. This well is making crude of 37.8 gravity, considerably higher than the average Graham crude. The Fitzgerald well is making crude running about 36.7 gravity, according to reports. A number of other wells in the vicinity are drilling, some of them getting down to depths where they should be in within the next few days.

Anti-Pollution Bill Is Making Progress

WASHINGTON, May 16.—Legislation designed to protect the coastal navigable waters of the United States from pollution by oil discharged from vessels is about to be reported to the house from the rivers and harbors committee.

In approving the principle laid down in the Lineberger bill, the house committee runs counter to the recommendations of the senate commerce committee which proposes to deal with polution from all sources.

Under instructions from the committee, Representative Walter F. Lineberger (R) of California, re-introduced his bill after revising it so as to place administration of the proposed law under the secretary of war instead of in the department of commerce. In anticipation of further legislation, the bill directs the secretary of war to make an investigation of the entire question of pollution, including all possible sources, and report remedial recommendations to congress within two years.

"We want an entering wedge; we want to get started right on this proposition of pollution," said Mr. Lineberger. "We want to get started by taking by the nape of the neck the major source of oil pollution, which is shipping. That is the whole idea of this bill."

Fully 90 per cent of the pollution of coastal navigable water is caused by oil, it was brought out at hearings held by the committee for more than three weeks on the subject. At least 90 per cent of the oil pollution comes from shipping, according to Herbert Hoover, secretary of commerce, who was one of the principal witnesses before the committee last January.

In dealing with the question of pollution, the unanimous opinion of the committee was in favor of going to the main source, since the oil pollution by land is regarded as a negligible factor. These land sources embrace shipyards, refineries and especially garages. The supervisor of New York harbor estimated that 75 per cent of its pollution comes from ships, which is, of course, a less proportion than that along the coast where land sources are a lesser menace.

The proposal to place administration of the law under the war department was made by Mr. Lineberger at the suggestion of the committee and of the corps of army engineers in charge of river and harbor work. It was thought the army engineers could more easily enforce regulations than the commerce department.

The Wilson bill, which aroused vigorous opposition from oil companies because it sought to control the discharge of oil from refineries into any inland stream, whether navigable or not, was killed in committee.

Mr. Lineberger expects the house and senate will be able to adjust their differences on the question of pollution in time to enact legislation before the close of the session.

Producers 10 Miles Northwest Of Cotton Valley Field

By Special Correspondent

SHREVEPORT, May 17.

FOR the fourth consecutive week daily average production in the Shreveport territory, including the Arkansas district, smashed former high production marks with a total of 203,857 barrels, a gain of 2645 barrels for the seven days' period.

There was also a 25 per cent increase in the number of new wells completed over the previous week and improvement also in initial production. There were 74 completions, including 4 gassers, 6 failures and 64 producers with total initial yield 16,035 barrels, against the preceding week's record of one gasser, one failure and 48 producers with total initial yield 13,455 barrels.

Smitherman & McDonald's Boucher No. 1 in 21-23-11, north, Webster parish, ten miles or more north and west of the new Cotton Valley field and two miles northwest of Lloyd Harris' Pine Woods well in 38-23-11, an isolated pumper of 75 barrels, completed in 1922, furnished the thrill of the week in the Shreveport territory. Completed several weeks ago as a small gasser it blew in last Sunday making 30 million cubic feet of gas and 200 barrels of oil.

As a companion feature development in the new gas area, Fuller & Scott's Furr No. 1 in Harrison county, Texas, about 200 feet west of the Louisiana state line, blew in at 1865 feet making 15 million cubic feet of gas and later increasing the capacity. It is running wild. If possible it will be capped and drilled deeper. It is several miles north of the Bethany gas field in Panola county, Texas.

After a long silence, Nevada county, Ark., came back to the production column with two wells yielding 180 barrels initial production.

As usual, the bulk of the initial production was in the Smackover district, which recorded 61 of the 74 completions in the Shreveport territory. Of these all except 3 failures were producing wells, with combined initial yield 15,600 barrels, compared with the preceding week's record of one failure, one

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SHREVEPORT, May 17.—Daily average production in the Shreveport territory, including Arkansas districts, showed a gain of 2645 barrels during the week just closed. The week's total reached the high mark of 203,857 barrels. Increases were noted in all districts except Caddo light and De-Soto-Red River.

By district the daily average production for the weeks ended May 15 and May 8 was as follows:

Daily Average	May 15	May 8
Caddo, light	11,920	12,190
Caddo, heavy	1,995	1,928
DeSoto-Red River	6,000	6 611
Cotton Valley	1,380	1,240
Haynesville	19,000	18,421
Homer	8,210	8 045
Bellevue	5,860	5,389
El Dorado	13,162	12 495
Smackover	134,030	132,978
Stephens	2,300	1,915
Total	203,857	201.212
Increase		2,645

Completions in North Louisiana and Arkansas Week Ended May 15

LOUISIANA

Webster Parish

Company	Well	Location	Depth	Yield
Smitherman-McDonald	Boucher No. 1	21-23-11	2705	200 bbls., 30 mil.ft.gas

Union Parish

R. E. Allison	Heard No. 1	25-23-1W	2615	S.W.Aband.

Bossier Parish—Bellevue

Humble Oil & Ref. Co	B. & W.-14	10-19-11	380	35
Standard Oil Co	Wyche No. 16	14-19-11	375	10

Bossier—Belcher District

Simms Oil Co	Noel No. 3	7-21-14	1595	10

Bienville Parish

Ark. Fuel Oil Co	Harrell No. 1	6-18-5	3350	S. W. Aband.

Morehouse Parish

Union Power Co	U. S. M. Co. A-10	5-20-4E	2160	20 mil. cu. ft. gas
Union Power Co	U. S. M. Co. A-15	2-20-3E	2145	5 mil. cu. ft. gas

Ouachita Parish

Central Carbon Co	Flournoy No. 4	22-19-5E	2285	10 mil. cu. ft. gas

TEXAS

Harrison County

Fuller & Scott	Furr No. 1	Jones HRS	1865	25 mil. cu. ft. gas

ARKANSAS

Nevada County

Presscott Oil Co	Henry No. 2	10-12-20	888	junked Aband.
Keystone Petroleum Co	Waters No. 5	10-14-21	1180	100
Smitherman-McDonald	Womack No. 3	10-14-21	1200	80

Stephens

Magnolia Pet Co	Hammon No. 6	25-15-20	2125	35
Standard Oil Co	L. Jones No. 1	25-15-20	2110	50

Smackover

Hale et al	Brierton No. 2	25-15-17	2280	40
Edmond S. Kelly et al	Smith No. 1	34-15-17	2370	S. W. Aband.
R. B. Nelson	Anderson No. 2	26-15-17	2345	65
Sun Oil Co	Berry No. 2	25-15-17	2296	60
Wingfield et al	Smith No. 3	36-15-17	2275	50
Atlantic Oil Producing Co	Rowland A-4	29-15-16	2295	175
Atlantic Oil Producing Co	Rowland D-1	20-15-16	2325	170
Gilliland Oil Co	Kyle No. 6	29-15-16	2300	100
Gilliland Oil Co	Patton No. 6	31-15-16	2280	100
Giles et al	S. & B. No. 2	29-15-16	2305	100
R. P. Morris	Rowland No. 1	20-15-16	2310	200
Snowden & McSweeney	Taylor No. 7	29-15-16	2284	50
Stumph & Todd	Shirey No. 2	30-15-16	2280	80
Stumph & Todd	La Grone No. 2	30-15-16	2280	25
Sutton et al	Hughes No. 1	28-15-16	2275	60
Sutton et al	Hughes No. 2	28-15-16	2260	40
A. F. Tarver	Fincher No. 2	29-15-16	2275	200
Texas Oil Co	Smith No. 4	31-15-16	2250	50
Texas Oil Co	Snow No. 4	30-15-16	2295	100
V. K. F. Drilling Co	Patton No. 5	32-15-16	2260	75
Anderson et al	Bilyew No. 2	8-16-15	2085	125
Ark. Fuel Oil Co	Smith No. 4	18-16-15	2075	35
Bernstein et al	Bell No. 1	21-16-15	2055	500
Bond & Evans	Scott No. 1	19-16-15	2074	1000
Crosby, trustee	Graves No. 5	17-16-15	2030	75
Crosby, trustee	Scott No. 3	19-16-15	2060	1600
Eason et al	Dumas No. 1	28-16-15	2070	S. W. Aband.
Federal Petroleum Co	Scott No. 1	19-16-15	2080	500
Federal Petroleum Co	Stocks No. 3	20-16-15	2063	350
Federal Petroleum Co	Stocks No. 5	20-16-15	2055	600
Flemming et al	Harrell No. 1	21-16-15	2080	400
Hickman et al	Hays No. 4	21-16-15	2060	500
Houston Oil Co	Ballard No. 3	21-16-15	2050	75
Humble Oil & Ref. Co	Dumas No. 3	21-16-15	2055	100
Humble Oil & Ref. Co	Moore No. 1	19-16-15	2050	1200
Imperial Oil Co	Lawton No. 3	7-16-15	2097	100
Keene & Wolf	Hinshaw No. 3	17-16-15	2085	60
La-Tex Oil Co	Hays No. 4	21-16-15	2065	500
Lion Oil & Ref. Co	Algulf No. 2	17-16-15	2130	125
Lion Oil & Ref. Co	Algulf No. 3	17-16-15	2090	100
Lion Oil & Ref. Co	G. F. Murphy No. 4	18-16-15	2010	150
Looney et al	Picks No. 1	20-16-15	2060	400
Natural Gas & Pet Corp	Murphy B-2	17-16-15	2140	200
Olvey et al	Moore No. 1	24-16-16	2073	350
Pure Oil Co	Smith No. 3	18-16-15	2045	40
Ray Drilling Co	Hicks No. 1	20-16-15	2050	250
Roxana Petroleum Co	Scott No. 1	19-16-15	2092	2500
Standard Oil Co	Alphin No. 13	11-16-15	2007	150
Standard Oil Co	Goodwin B-2	5-16-15	2232	junk. Aband.
Stewart et al	Hicks No. 1	20-16-15	2085	300
Stewart et al	McKinney No. 2	19-16-15	2065	125
Texas Oil Co	Cook No. 3	21-16-15	2053	350
Unity Oil Co	Alphin No. A-2	24-16-16	2065	300
Gulf Refining Co	Solmson No. 7	29-15-16	2260	115
Gulf Refining Co	L. Werner S. M. No. 16	6-16-16	2253	110
Gulf Refining Co	Stringfellow No. 3	29-15-16	2315	160
Gulf Refining Co	Stringfellow No. 4	29-15-16	2310	200
G Tiland Oil Co	Starles No. 1	1-16-17	2280	100
Magnolia Pet. Co	Neely No. 3	1-16-17	2263	50

gasser and 42 producers with combined initial production 13,950 barrels.

In the Stephens district two producers gave total initial yield of 85 barrels, against the preceding week's record of 150 barrels from four producers.

Ouachita parish yielded one gasser, and the Morehouse parish two gassers, compared with no completions in the northeastern Louisiana gas area the previous week.

In Bienville parish, adjoining Claiborne on the south, there was one completion, a failure. It was the Arkansas Fuel Oil Co.'s Harrell No. 1 in 6-18-5, salt water and abandoned, at 3350 feet.

Bossier parish, outside of Bellevue, reported a 10-barrel producer in the Belcher district, against none the week before.

Bellevue, the shallow sand district of Bossier parish, recorded 2 small producers, total initial yield 45 barrels, compared with the same number of producing wells the week before, with total initial yield 110 barrels.

The only completion in Union parish was a failure, namely R. E. Allison's Heard No. 1 in 25-23-1, salt water and abandoned, at 2615 feet.

Caddo parish again went through the seven-day period without a completion being listed, as did also Homer, Haynesville, and DeSoto-Red River.

Union Oil Co. Tests At Rosecrans Doing 1,000 Barrels Daily

By Special Correspondent

LOS ANGELES, May 15.—Ten times the Union Oil Co. of California has cemented off its Rosecrans No. 1 well at Rosecrans, and exactly that many times the hole has been swabbed wet. After the ninth failure the company drilled the hole down for something like 50 feet, coring all the way, and finally drilled out of the oil formation. It is reported that the drillers will go down in quest of the second sand, in which the Athens No. 1 was completed 10 days ago at a depth of 4948 feet, although official confirmation has not been received.

It appears now that the Union will have perhaps the largest block of leases in the Rosecrans area when drilling there gets well under way. It now controls 975 acres. Of this, it has 650 acres under lease, holds a two-third interest in another 210 acres, and a 30 per cent interest in 105 acres. Union has leases on both sides of Harbor boulevard which extends from Los Angeles to San Pedro. It has taken over all the holdings of the Potter Oil Co. of California (Barnsdall Corp.) on a percentage basis, according to reports.

The Associated Oil Co. has an 80-acre lease north of the Rosecrans No. 1, and holds several smaller blocks to the south and east of it. Altogether the Associated has perhaps not less than 200 acres at present. The Shell Co. of California has a considerable tract to the northeast of the Rosecrans well, and the General Petroleum Corp. is reported to have picked up several fair sized tracts in that vicinity recently.

Doing 1000 a Day

Southeast of the Rosecrans the Sandburg Petroleum Co. is drilling on two leases, and the Globe Petroleum Corp., U. S. Royalties Co., B. C. Morrison interests, Petroleum Midway Co., Ltd., Standard Oil Co of California, and St. Helens Petroleum Co. are working on scattering leases in nearly all directions from the Rosecrans No. 1. Meanwhile the Athens No. 1, started by the Potter Oil Co. and finished by the Union, is doing its 1000 barrels per day, as steady as clockwork.

So far as is known this is the first field in the country that was ever discovered from the second producing sand. It happened that way in this case because the Potter, two years ago, didn't think the first sand was productive enough and went on down, and when the Union undertook to complete the hole it was so mudded up at the first production depth that a deeper test was made and it proved to be eminently successful.

Torrance Up To 53,000

The Torrance field is still grinding out it usual list of new producers each week. Its daily output, according to the pipeline run, is now up to 58,000 barrels per day. The field has toyed around the 60,000-barrel mark for several weeks, but hadn't been able to cross the line up to now. The trend there appears to continue in a general southwesterly direction, with the Chanslor-Canfield Midway Oil Co., the Petroleum Securities Co., Standard Oil Co. of California and Shell Co. doing most of the active work. The new wells are still doing from 250 to 800 barrels apiece. Torrance now has 250 wells on production.

California Daily Production

	May 17	May 10
Long Beach	170,000	174,000
Santa Fe Springs ..	71,000	72,000
Torrance	59,000	58,000
Huntington Beach	49,000	48,000
Dominguez	9,000	9,300
Rest of state.....	283,700	280,000
	641,700	641,300

Rideout Heights, at the northwest corner of the town of Whittier, is apparently on the eve of knowing whether or not it is to be an important petroleum producing area. There are upwards of 10 wells drilling in that region which are within from 200 to 800 feet of the depth at which J. E. O'Donnell struck gusher production in his Whitely No. 6 last Christmas. Good production is expected in these wells at from 4000 to 4200 feet. On the way down the drillers have, in several wells, found a tar sand at about 350 feet, a light oil sand at about 2700 feet and small showings below 3000 feet. If this district shows up anything like Brea-Olinda, Murphy-Coyote and other districts surrounding Whittier, a long-lived and highly productive field may shortly be added to the other noted petroleum fields of the Los Angeles basin. Here again there will be ample opportunity for frenzied drilling, because 10 of the major producing companies are already drilling in the field, and quite a handful of small outfits hold leases there.

Dominguez Moving Slowly

With the Shell Co., Union and General Petroleum Corp., practically in control of all the Dominguez territory which appears to be worth drilling, developments there are moving along slowly. It looks as though the Rosecrans territory would easily outstrip Dominguez in reaching the 50,000-barrel-a-day mark. It is common gossip here that the big companies at Dominguez do not intend to let the field's production get beyond 40,000 to 50,000 barrels per day this year. At Rosecrans "birth control" simply cannot be practiced, because there are many companies and small leases.

Operators say that Rosecrans is likely to be another Santa Fe Springs, both from a mere drilling and a producing standpoint. They look for big producers, heavy gas pressure, and an immense quantity of wet gas, which should mean a rushing business in the manufacturing of casinghead gasoline. One company is already erecting an absorption plant in the field. The Rosecrans oil tests between 34 and 38 degrees gravity.

The Fortuna Oil Co., in the El Segundo district, is reported to be making preparations to plug back from about 4500 feet to the 3900-foot level for the purpose of making a test for production. The company ran into a formation at about 3800 feet which bore every indication of being productive. After leaving that formation the drillers cored all the way down to 4500 feet and found nothing which looked better. If they fail to get production at 3900 feet the company may go on down for a second sand, it is reported.

The Los Angeles basin field completed 24 wells last week. Torrance had 10 completions, Long Beach 10, Huntington Beach two, Santa Fe Springs one, and the Rosecrans field took its place in the column for the first time with one completion.

TULSA, May 17.—Edwin M. Wheeler, of Buffalo, N. Y., vice president and general manager of the Eastern Oil Co., is leaving for home tonight after having spent two weeks in the company's Tulsa headquarters.

Eastward Extension Wilmot Pool Proved By 300-Bbl. Well

By Special Correspondent
FORT WORTH, May 17.

A DISTINCT improvement in the general feeling of the North Texas producing industry is apparent as the week closes, because of the huge gasoline order placed the first of the week and the failure of other purchasing companies to meet the price cuts made by the Magnolia and Humble.

But the steps taken with the first cut, to curb drilling at this time, will not be retracted soon, according to information gleaned from some of the representative independents of Wichita and Archer counties. It is from these two counties that an over production menace will come in North Texas, if it does come, for in the south part of the district the operators are still adhering strictly to the conservative program mapped out by necessity several years ago.

Wichita county operators bought some very high priced experience in 1919 and 1920. Many of these same operators say they have learned their lesson thoroughly, and that the first warning which has already come, will be sufficient for them. This is substantiated by the action of those engaged in developing some of the new Archer county pools, who agreed the first of the week to curtail operations immediately, drilling only those wells necessary to protect property. Luke Wilson, on whose land the majority of the new North Archer production is located, is withdrawing acreage formerly open for generous contracts.

As the week ended without any further cuts, so that the cut affected this section very little, there was every determination to stick to a conservative program, until actual demand would justify increasing production.

Reports from operations contained several points of interest. The eastward extension in the Wilmot area, north Archer, was confirmed by the completion of the Murchison and Fain No. 1 J. H. White, for a 300-barrel well, in the 1,600-foot sand, though there is some water still in evidence.

This well opens up a half-mile stretch to the east of production in the area opened a few weeks ago by the Atlantic's No. 1 Parrish, itself an important eastward extension from the main pool. A southward extension for this same new pool is afforded by the Gulf's No. 2 A. P. Nichols, which is now completing in the 1,600-foot sand.

It is interesting to know that the actual pump test of the Big Lake Oil Co.'s No. 4 University lands, in Reagan county, showed an initial of 200 barrels daily, making this a better well than was at first expected. The No. 5 is swabbing, and has made as much as 150 barrels in 24 hours. Estimates on production of these two wells were conservative, and were apparently too conservative. Operations are going slowly in this section, as a matter of necessity; but there is no abatement in the interest of the many groups of operators who have been gradually making investments since the opening of the field a year ago.

Texas Daily Production

	May 17	May 10
Mexia-Currie	35,910	35,292
Corsicana-Powell .	101,000	112,000
Wichita Falls Dist.	77,690	77,270
Ranger Lime	38,025	36,595
Ranger Sand, West Texas and Panhandle	11,440	11,710
San Antonio, Luling and Mirando ...	37,000	29,300
Coastal Texas	70,150	73,410
Coastal Louisiana	6,225	5,850
	377,440	381,427

Completions North-Central Texas District Week Ending May 17

WICHITA FALLS DISTRICT

Wichita County

Company	Well No.	Lease	Depth	Production
Texhoma Oil & Refining	1	Burnett et al-D	1590	50
Underwood Drilling Co.	1	McCarty	1675	200
United Central Corp.	2	McCarty	1675	250
Atlantic Oil Producing	1	Murray	1660	140
Empire Gas and Fuel	1	Pierce Oil Corp.	1460	110
Empire Gas and Fuel	11	Waggoner-A	1825	30
Saunders and Brewer	1	Nance	1720	Aband.
W. E. Norton et al.	1	Hall and Jenkinson	2025	Aband.
W. E. Norton et al.	1	Waggoner Bros.	450	Aband.
The Texas Company	292	Waggoner	1630	90
Winnipeg Oil Co.	4	Foster and Allen	1900	Aband.
John O'Neil	1	Foster and Allen	2000	Aband.
Burton, Gwynn et al.	1	Chilson	1906	Aband.
Buchanan, et al.	1	Murdock	1400	Aband.
Panhandle Refining Co.	3	J. L. Jackson	1805	600

Archer County

Company	Well No.	Lease	Depth	Production
Atlantic Oil Producing	1	Wilson-Plk 5	1590	110
Atlantic Oil Producing	4	Wilson-Blk 5	1580	500
Jones Oil Company	7	Wilson	1620	200
Kimbrough and Miller	2	Perkins et al.	1030	60
Gilchrist et al.	5	Wilson	1595	Aband.
Chenault and Lea	1	Wilson-Blk 1	1395	60
Bridwell and Heydrick	2	Wilson-Plk 8	1570	70
Bridwell and Heydrick	3	Wilson-Plk 8	1640	Aband.
Kentucky Oil Corp.	4	Wilson-F	1600	80
Kentucky Oil Corp.	8	Wilson-F	1600	60
Kentucky Oil Corp.	13	Wilson-F	1595	80
Kentucky Oil Corp.	3-A	Wilson-B	1580	160
Kentucky Oil Corp.	5	Wilson-D	1600	60
Grisham and Parks	2	Wilson	1580	150
Camp Oil and Gas	14	Wilson-H	1600	60
Donohoe and Parker	1	Wilson	1620	300
Griswold Oil Corp.	1	Wilson-C	1630	Aband.
Chenault, Lea and Johnson	8	Wilson	1590	90
P. F. Gwynn et al.	14	Mrs. J. H. Carter	1370	60
P. F. Gwynn et al.	15	Mrs. J. H. Carter	1590	Aband.
P. F. Gwynn et al.	8	Wilson-Blk 6	1600	60
Carter and Balveat	2	J. E. Parrish	1760	Aband.
Boller, Wolf and Minchew	6	Wilmot	1590	50
W. S. Langford	9	Kemp and Kempner	1639	75
Nance et al.	2	Wilson	1590	400
Prairie Oil and Gas	6	Wilson-A	1600	160
Wichtex Oil Co.	1	Wilson	1625	300
T. P. Coal & Oil and Burton & Ruff	2	Wilson-A	1580	Aband
Ramming and Saunders	3	Filson	1590	210
C. H. Verschoyle et al.	6	Wilson-B	1585	250
Pace, Muse et al.	2	Wilson	1625	Abard.
Riner and Bailey	3	Wilson-A	1590	65
George L. Pace et al	2	J. H. White	1640	Aband.
Murchison and Fain	1	White	1600	300

Archer County—South

Company	Well No.	Lease	Depth	Production
Clark and Clayton	5	Richardson	1360	60
Hobbs et al.	6	Goldsmith	1365	40
Shamrock Oil Corp.	6	Richardson	1350	110
Shamrock Oil Corp.	6	Harbison	1400	Aband.
Coleman et al.	3	Scruggs	1350	50
American Refining Co.	1	Ward	1800	Aband.
Archer Oil Corp.	1	Llewellyn et al.	1450	40

Baylor County

Company	Well No.	Lease	Depth	Production
Cochran, Whitney and Everest	1	Stephens	2000	Aband.

GENERAL RANGER TERRITORY

Palo Pinto County

Company	Well No.	Lease	Depth	Production
Haubert et al.	1	Porter	300	Temp. Aband.
Hess et al.	1	Croker	3700	Aband.

Parker County

Company	Well No.	Lease	Depth	Production
Upham Gas Company	1	Byrd	1400	Aband.
Upham Gas Company	13	Morton	2370	Aband.
Upham Gas Company	3	Moran	1280	Aband.
Talbert Drilling Co.	1	Gokbert	3890	Aband.

Young County

Company	Well No.	Lease	Depth	Production
Simms Oil Company	4	Lynn	2640	75
Holcomb and Elders	1	Bullock	1190	Temp. Aband.

Stephens County

Company	Well No.	Lease	Depth	Production
Van Damme Oil Co.	2	Douglas	3320	25 bbls., shot 140 qts.
Strawn Petroleum	19	Stuart	3670	Aband.
Haile and Knight	2-B	Jones	3180	160 bbls., shot 170 qts.
Moore and Garrett	3	Lee	1720	Aband.
Williams et al.	9	Rosenquest	1830	30 bbls., shot 25 qts.
Little et al.	4	Drake	3250	225 bbls., shot 80 qts.

Eastland County

Company	Well No.	Lease	Depth	Production
The Texas Company	9	Hightower	1230	40
Tom Harrell	1	Shugart	2860	40
Panhandle Refining	15	Hightower	1200	20
Rosenfield et al.	4	Gilbert	500	Aband.
Kirk and Brewer	4	Shugart	2840	40

Runnels County

Company	Well No.	Lease	Depth	Production
Russell Production Co. 2	2	Russell	2500	Aband.

Callahan County

Company	Well No.	Lease	Depth	Production
Seaboard Oil and Gas	1	Isenhower	1770	30
Moore et al.	1	Anderson	2540	140 bbls., shot 80 qts.
Junior Oil Company	1	Surles	1800	Aband.

Wildcat In Lake Basin Uplift, Montana Comes In As Producer

By Special Correspondent
DENVER, May 17

MONTANA took first place in the news this week with two completions out of the ordinary. One of these, drilled by the Mid-West Refining Co., appears to have opened a new pool in an entirely new district and the other, in the Kevin-Sunburst field, is notable principally because of its large flush production of 3000 barrels in an area that is spotted and has had previously but few wells anywhere near that capacity.

The Midwest well is on 26-1n-21e, in Stillwater county, 25 miles west of Billings, 55 miles north of the Wyoming boundary, 100 miles southwest of the Cat Creek field, and 75 miles northwest of the Soap Creek field in Big Horn county. It is on the Big Lake dome, one of several structures on what is known as the Lake Basin uplift.

The well encountered the Dakota sand at 3825 feet and made a good showing in the top of the sand. Work was suspended to run the 6-inch casing when the hole commenced to fill with oil. Six hours later it blew itself in, shot the oil over the top of the derrick, and then subsided. Since then it has made several good flows by heads and gives every indication of opening an important pool. Tankage is being moved in and an earth reservoir is catching the oil in the meantime. The oil is of paraffin base, about 46 gravity Be. test. The company has made no estimate of what the well will do and, as it is barely in the sand, further work upon it will be necessary before the full significance of the strike can be appraised.

The discovery was drilled by the Midwest for the Mid-Northern Oil Co., its Montana subsidiary, and is on acreage which was turned over to that company by the Barnsdall-Foster Oil Co., a subsidiary of the Barnsdall Corporation, after it had drilled two tests that were abandoned. It now appears that the Barnsdall tests were on the flanks of the structure. One was three miles away from the discovery, but had oil and gas in small quantities.

Lake Basin Uplift

The Lake Basin uplift is 25 to 50 miles northwest of Billings, in the southwestern part of the territory mapped by the government as the Lake Basin district, upon which are imposed the Six Shooter, Twin Butte and Big Lake anticlines. The Midwest is also drilling a test on the Six Shooter structure. Structurally, the territory lies on the edge of a maior anticlinal fold known as the Big Horn Mountain uplift. A zone of faulting 2 to 5 miles in width traverses the Lake Basin district in a general northwest-southeast direction from Corinth to Gibson, Montana, and borders the Lake Basin uplift on the north. This belt of parallel faulting is the dominating structural feature of the region.

The Big Lake anticline lies to the southeast of Twin Butte which, in turn, is southeast of the Six Shooter anticline. Its axis trends nearly due north and south. The fold is about 6 miles long and 1 to 2 miles in width. It is a symmetrical anticline with an average dip of 1½ degrees, and a closure of about 140 feet. The Bearpaw shale is exposed over the entire fold.

The first well drilled by the Barnsdall-Foster Company was in 34-2-21. At 1145 feet it encountered a flow of about 3,000 000 cubic feet of gas. The rig caught fire when the well blew in and the hole and all the equipment was an entire loss. An offset was then drilled in 35-2-21. Gas was not found in the Eagle sand in No. 2 but a good showing of oil was encountered at 1141 feet, which the officials estimated would make 10 to 15 barrels a day. At 2910 to 2965 feet water was encountered that filled the hole to the surface.

At 3000 to 3015 feet, water under gas pressure flowed over the beam. There was a showing of gas at 3505 to 3525 feet in a soft sand. Considerable quantities of oil and a showing of gas was found at 3710 to 3782 feet. The oil was of high grade (42.6 Be.) and congealed at temperatures below 70 degrees Fahr. The first Kootenai (muddy) sand was dry at 3900 feet and the second Kootenai (Dakota) contained water at 4050 feet where the hole was abandoned. The company did not care to make any further test and turned the acreage over to the Midwest interests under a drilling agreement. The Midwest interests control most of the 3500 to 4000 acres on the structure.

3000 Barrels in Sunburst

The other Montana strike was made by the Van Meer Oil Co. in the SE¼ of 4-34-2, Kevin-Sunburst field, in Toole county, 18 miles south of the Canadian border. It tapped the sand at 1514 feet and the initial production was around 3000 barrels. The production in this field mostly comes from the Ellis formation of Jurassic age which underlies the Dakota (Kootenai) formation.

The field is spotted and wells have come in as fairly good producers when surrounded by dry holes. The wells, in general, are not large but there are exceptions. The Ohio Oil Co. Baker No. 3 came in for around 3000 barrels and in 165 days produced 160,000 barrels. When it was shut in for the winter last October, it was still making 800 barrels. Altogether, it had made 182,000 barrels up to that time. When operations were resumed on April 1, this well made 1500 barrels in the first 16 hours.

This increase in production after the well had been shut in for 6 months was typical of the entire field. The sand varies in thickness and the maximum appears to be about 36 feet. The performance of the wells after the shut-in period was accepted by some as evidence that the Ellis was not the source

Completions Rocky Mountain District Week Ending May 10

WYOMING

Salt Creek

Company	Well No.	Description	Depth	Production
Wyoming Associated	11-A	34-40-79	1515	650
Wyoming Associated	18-A	14-40-79	1905	95
Midwest Oil	21-AX	11-40-79	2150	100
Midwest Oil	27-AX	25-40-79	1520	To be shot
Midwest Oil	16-A	1-39-79	1829	240
Wyoming Oil Fields	21-AX	24-40-79	1487	160
Wyoming Oil Fields	31	24-40-79	900	85
Salt Creek Consolidated	24	31-40-78	1128	510
Salt Creek Consolidated	26-A	7-39-78	2254	To be shot
Mt. and Gulf and Wyo. Asso	12-A	12-40-79	2362	140
E. T. Williams Oil	9-A	19-40-78	....	300
Kasoming Oil	1-C	12-39-79	2234	75
Lost Soldier				
Texas Co	2 Goode	3-26-90	2280	1080
Osage				
Osage Oil Trust		12-46-64		Not tested

MONTANA

Kevin—Sunburst

Potlach Oil & Gas	1 Adams	21-34-1W	1165	Gas
Adams-Anderson	2 McManus	21-23-2W	1447	50
McDonald-Sorrell	1	8-34-2	1450	25
Foster-Sweeney	1	5-34-2W	1455	25
Cat Creek				
California Co	6	12-15-23	1746	Not tested

of the oil but that it was migrating from a lower formation.

Former State Senator T. S. Hogan, of Montana, a prominent operator in the Kevin-Sunburst field, was in Denver when the news of the Van Meer well was received. He says the impression is growing that the production is coming from a deeper sand and that 2 or 3 deep tests will be put down in the field this spring. He declared that, while the field is spotted, drilling is economical as the oil is found at a comparatively shallow depth and no water trouble is encountered above the sand. The producing horizon is above the Madison lime and the Tensleep and Amsden sands are not in place.

Well in Lost Soldier

The Texas Co. has a good well in 3-26-90, on the edge of the Lost Soldier pool in Carbon county, Wyo. It came in at 2280 feet Tuesday morning at 10 o'clock and flowed an average of 45 barrels an hour for the first 48 hours and continued to hold up at about that rate at the end of the period. The well is known as the Goode No. 2 and was a semi-wildcat though an offset to a well completed last fall which made an extension of the proven area on this dome. The production is coming either from the Dakota sand or a stray sand just above.

Several additional important wildcat locations have been announced by the larger companies in Colorado. One of these is on the Beaver Creek dome which straddles the boundary between Routt and Moffat counties in northwestern Colorado, about 12 miles southeast of the Moffat dome upon which the discovery well of The Texas Co. is located. Beaver Creek is expected to be shallower than the Moffat dome and the Dakota sand is due at around 2500 feet. The location for the well is in the nw¼, se¼ of sw¼ of 32-4-89 in Routt county.

The well will be drilled for the joint account of the Texas Co., the Transcontinental Oil Co., and the Midwest Refining Co. under a "dry hole" agreement which provides that, if it comes in as a producer it will belong to the Transcontinental, which has the land upon which it is located, but that if it should prove to be a dry hole, the three companies will jointly stand the cost. Acreage on the structure is held by the three concerns and this is the first test to be drilled. Equipment is now being moved to the location.

Joint Drilling Plan

Another location is on Lot 2, in 16-4-92, Iles dome, 5 miles southwest of the Moffat dome. This is also a joint operation to be drilled under a dry hole agreement. It is located on land held by T. S. Hogan, of Montana secured from the Craigwell Oil Co., and the other interests joining in the test are the Texas Co. and the Transcontinental Oil Co. The California Co., subsidiary of the Standard Oil Co. of California, owns the state lease on section 16, except the lot upon which the test is located, and it is understood it is affiliated with Senator Hogan in the arrangement.

This makes three tests for the Iles dome to be drilling at the same time. The Midwest Refining Co. is getting ready to drill in w½ of 22-4-92 and the Yarg Producing & Refining Co. is moving in for a test in Lot 31, sw¼ of 14-4-92. The Yarg company owns the fee on 3272 acres, for which it paid $327,000. The last payment, $125,000, was made the past week.

No other new locations were announced for wildcat wells in Colorado by the larger companies this week, but some of the smaller concerns which are carrying on stock selling operations along with their drilling plans have spotted some wells. These are mostly in the Wellington-Fort Collins district in northern Colorado and until they progress beyond the present stages are of minor importance.

The Ohio Oil Co. wildcat on 28-2-70, Haystack structure, in Boulder county, is now reaching the interesting stage. It is below 1960 feet and has already encountered considerable shale oil. Manager Hurley is hopeful of obtaining a sufficient supply from the shale for fuel purposes.

Rocky Mountain Territory

Pipe line runs from the various fields in the Rocky Mountain region for the week ended May 17 showed an increase of 1235 barrels when compared with the record of the preceding week. Salt Creek runs increased 2340 barrels in the week. Total average daily production in all Rocky Mountain districts for the week ended May 17 was 130,245 barrels as compared with 129 010 barrels for the preceding week. Comparative daily runs from each field for the weeks ended May 17 and May 10 follow:

Fields	May 17	May 10
Salt Creek	94,500	92,160
Teapot	3,000	3,180
Big Muddy	3,900	3,910
Grass Creek	3,835	3,855
Elk Basin	1,360	1,375
Greybull, etc.	75	65
Mule Creek	1,020	1,235
Rock River	3,415	3,400
Lance Creek	2,035	1,945
Poison Spider	340	335
Osage	575	660
Hamilton Dome	785	575
Lander	345	350
Pilot Butte	70	80
Lost Soldier	4,820	5,075
Ferris	160	145
Cat Creek	4,775	4,950
Kevin-Sunburst	4,685	5,125
Miscellaneous	550	590
Totals	130,245	129,010

The Hygiene sand, from which the production came in the old Boulder field, in which this test is located, is expected at 2500 feet and the Dakota at 3600 to 3800 feet. Unless the Hygiene yields larger quantities of oil than expected, it will be cased off to continue on down for the first test of the Dakota in that area. Already, the indications are quite favorable and, should the Hygiene be productive at this point, it will hold out considerable promise for the objective sand.

New Mexico

New Mexico has little to offer in the way of news. The Midwest Refining Co. No. 8 on the Hogback dome in the Navajo Indian reservation, which proved up an additional 40 acres when it came in unexpectedly at 684 feet, has been mudded in and temporarily killed. There is no market for the oil available and as the well would have been capped if finished, that was considered the simplest way of handling it. The drill was only 6 inches in the sand and the company estimates the well good for 500 barrels.

The company has not yet reached any decision as to what it will do with the Hogback oil. Tentative surveys for a pipe line to Gallup and another to Albuquerque were made some time ago but the quantity of oil so far developed is not considered sufficient to warrant the expenditure. The company then looked into the feasibility of constructing a shorter line to Farmington, 12 miles away, and building a small topping plant to supply the local territory but this, likewise, is still in the tentative stage. It is probable that nothing will be done until the outcome of the several wildcats drilling in the Colorado, Utah and New Mexico areas close to where the three states come together, disclose what may be expected in the way of crude for transportation.

Test To North Of Powell Fails In Woodbine

FORT WORTH, May 17.—The second test of the Boyd (Humphreys) Oil Co. in the territory north and northeast of Powell, where wildcatters have hopes of opening up another Powell-Mexia field, has failed in the Woodbine, according to reports from the Bazette structure test this week.

The Bazette test is now drilling below the Woodbine sand depth, and will go to the Trinity, according to the reports. The Boyd's first test, on the Prairieville structure, went into the Austin chalk too low to hold out hopes of production, and was abandoned.

In Kaufman county the wildcat of Skinner and Lyles northeast of Terrell is reported to have picked up a show of oil and gas around 2,940 feet. This is considered too high, however, for the Woodbine sand. The chalk record on this well is regarded as promising, as reported from time to time.

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California Shipments Gain Half Million Barrels

LOS ANGELES, May 11.—Touching the lowest mark that has been set for several weeks, petroleum exports from Los Angles Harbor last week fell off nearly one million barrels, compared with the shipments of the previous week. The total shipments were 1,556,350 barrels.

The shipments for the previous week were exceptionally high and amounted to 2,504,200 barrels. Thirty-six tankers were used and of this number, 14 were consigned to eastern ports, 14 to Pacific ports and 6 to foreign harbors. One important shipment was a load of 82,000 barrels of gasoline for London on the Foldensfjord. The shipments for the week of April 26 to May 2 were as follows:

April 26

John D. Archbold to New York, 140,000 barrels crude for Standard Oil Co.
Los Angeles to Martinez, 69,200 barrels crude for Union Oil Co.
San Gregorio to Quique, 115,000 barrels fuel for Eagle Oil Co.
Richmond to Richmond, 64,000 barrels crude for Standard Oil Co.

April 27

M. H. Whittier to Iquique, 77,000 barrels fuel for Shell Co.
Hugoton to Philadelphia, 77,000 barrels crude for C. D. Mallory.
Cape Henlopen to Philadelphia, 64,600 barrels crude for Cape Oil Co.
William Rockefeller to New York, 131,000 barrels crude for Standard Oil Co.
Alden Anderson to Avon, 61,600 barrels crude for Associated Oil Co.
La Purisima to San Diego, 71,600 barrels crude for Union Oil Co.
El Cedro to Vancouver, 10,000 barrels crude for General Petroleum Corp.

April 28

Lebec to Seattle, 70,000 barrels crude for Union Oil Co.
Utacarbon to Martinez, 66,000 barrels crude for Union Oil Co.
Rapello to San Diego, 82,000 barrels fuel for U. S. Navy.
W. S. Rheem to New York, 116,500 barrels crude for Standard Oil Co.

April 29

S. Q. Brown to New York, 62,200 barrels crude for Tidewater Oil Co.
Betterton to New York, 68,500 barrels crude for Walker & Daly.
Chester Sun to Philadelphia, 68,100 barrels crude for Standard Oil Co.
Tuxpanoil to Baltimore, 80,000 barrels crude for McAllister Bros.
S. C. T. Dodd to Seattle, 74,600 barrels fuel for General Petroleum Corp.

April 30

W. F. Burdell to New York, 79,200 barrels crude for Pure Oil Co.
Foldensfjord to London, 82,000 barrels gasoline for Anglo-Saxon Petroleum Co.
Coalinga to Oleum, 70,400 barrels crude for Union Oil Co.
La Crescenta to Tokuyama, 55,000 barrels fuel for General Petroleum Corp.
Montebello to Martinez, 76,600 barrels crude for Union Oil Co.
La Purisma to Oleum, 32,000 barrels diesel oil, 10,000 barrels gas for Union Oil Co.

May 1

W. S. Miller to San Francisco, 73,600 barrels crude for Standard Oil Co.
Richmond to Richmond, 62,000 barrels crude for Standard Oil Co.
Imlay to Boston, 65,300 barrels crude for C. D. Mallory.
Atlas to San Diego, 14,000 barrels crude for Standard Oil Co.
Dixie Arrow to New York, 87,500 barrels crude for Standard Oil Co.

May 2

Empire Arrow to Taku Bar, China, 79,400 barrels fuel for Stanard Oil Co.
Aladdin to New York, 68,400 barrels crude for Standard Oil Co.
Agwiesea to New York, 79,900 barrels crude for Atlantic, Gulf & West Indies Steamship Co.

Pacific coast shipments for the week of May 3 to 9 amounted to 11 tanker loads, while 7 tankers went to the Atlantic seaboard and 5 departed for foreign ports. The shipments were as follows:

May 3

Lubrico to San Francisco, 85,200 barrels crude for Standard Oil Co.
Miskianza to New York, 66,200 barrels crude for Daly & Walker.
H. M. Storey to New York, 90,100 barrels crude for Standard Oil Co.
Utacarbon to Martinez, 77,000 barrels crude for Shell Company.
Deroche to Port San Luis, 65,200 barrels crude for Union Oil Co.
Atlas to San Francisco, 17,200 barrels crude for Standard Oil Co.

May 4

Calgarolite to Iquique, 82,650 barrels crude for Standard Oil Co.
Liebre to Yokahama, 68,650 barrels crude for General Petroleum Corporation.

May 5

Richmond to San Francisco, 82,850 barrels crude for Standard Oil Co.

May 6

J. A. Moffett to San Francisco, 64,200 barrels crude for Standard Oil Co.
Shabonee to Shanghai, 44,600 barrels crude for Standard Oil Co.
Teon to Everett, 55,300 barrels crude for General Petroleum Corporation.
Agwihavre to New York, 82,800 barrels crude for Tidewater Oil Co.
W. F. Herrin to Avon, oil well machinery for Associated Oil Co.
La Brea to Philadelphia, 64,850 barrels crude for Union Oil Co.

May 7

Lubrica to San Francisco, 63,800 barrels crude for Standard Oil Co.
San Fabian to Tuxpan, 123,350 barrels crude for Eagle Oil Co.

May 8

Cape Ann to Philadelphia, 67,500 barrels crude for Cape Oil Co.
Utacarbon to Martinez, 77,000 barrels crude for Union Oil Co.
Paul Shoup to Buenos Aires, 67,700 barrels crude for Associated Oil Co.

May 9

Clement Smith to Boston, 68,400 barrels crude for Oil Transportation Co.
Hampton Roads to New York, 63,700 barrels crude for McAllister Bros.
Moave to Portland, 68,100 barrels crude for General Petroleum Corporation.

Sell Webster Parish Acreage

SHREVEPORT, May 19.—J. E. Stack and H. D. Egger sold 4125 acres in townships 20 and 20, range 9, Webster parish, to W. B. Smith for $25,000. The acreage includes a well in section 5-20-9 known as the Bible No. 1. The land is from four to ten miles east and southeast of production in the new Cotton Valley field of Webster parish.

Gulf Coastal, Texas Completions, Week Ended May 17

Company	Lease—Well	Field	Depth	Prod.
Gulf Production Co.	Morris Phillips 19	Hull	3500	2600
Republic Production Co.	Dolbear 69	Hull	2975	125
Gulf Production Co.	Hannah Fee 13	Hull	3300	Aband.
Gulf Production Co.	Lee Hager Fee 13	Orange	3500	650
Sun Oil Co.	B. Smith 13	Goose Creek	2480	300
Gulf Production Co.	Rucker Schilling 7	Goose Creek	3500	80
Ada Belle Oil Co.	Paraffine 70	Batson	1060	25

Gulf Coastal Water Shipments, April Compared With March

Company—Port	Coastwise March	Coastwise Refined April	Export March	Export Refined April
Standard of Louisiana, Baton Rouge	363,427.00	836,991.00	170,133.00	832,482.00
The Texas Company, Port Arthur	977,629.00	1,023,055.00	445,784.00	342,561.00
Gulf Refining Co., Port Arthur	2,182,982.13	1,777,194.93	452,654.71	413,378.96
Magnolia Petroleum Co., Beaumont	1,263,502.71	1,431,391.35*	.....	.....
Sinclair Refining Co., Houston	115,584.00	560.00	104,104.00	42,770.00
Galena Signal Oil Co., Houston	28,000.00	84,000.00	21,000.00	156,000.00
Deepwater Oil Refineries, Houston	15,000.00	15,000.00	.....	.....
Humphreys Pure Oil Pipe Line Co., Smith's Bluff	116,371.73	95,993.04	.....	.....
Totals	5,067,496.57	5,264,185.92	1,193,675.71	1,787,191.96
	Coastwise Crude		**Export Crude**	
Standard of Louisiana, Baton Rouge	.....	738,367.00	.....	.....
The Texas Company, Port Arthur	312,425.00	240,042.00	.....	.....
Gulf Refining Co., Port Arthur	66,169.20	89,653.05	.....	.....
Magnolia Petroleum Co., Beaumont	318,878.26	398,361.78*	.....	.....
Sun Oil Company, Sabine Pass	291,236.00	243,424.00	.....	.....
Humble Oil & Refining Co., Texas City	1,170,193.00	713,828.00	70,734.00	71,537.00
Baytown	468,617.00	384,851.00	.....	.....
Neches Terminal	109,563.00	144,939.00	.....	.....
Sinco	178,599.00	341,174.00	.....	.....
Vacuum Oil Company, Texas City	.....	74,473.00	.....	.....
Humphreys Pure Oil Pipe Line Co., Smith's Bluff	206,869.70	444,535.65	.....	.....
Atlantic Oil Producing Co., Atreco	357,454.17	264,050.89	.....	.....
Port Arthur	158,117.99	222,903.27	.....	.....
Pasadena	218,255.41	505,667.05	.....	.....
Smith's Bluff	95,841.85	288,859.08	.....	.....
Totals	3,947,219.58	5,055,128.77	70,734.00	71,537.00

*—Magnolia makes no distinction in reports between coastwise and export shipments.
All figures in barrels of 42 gallons.

Stroud Field Production Estimated At 20,700 Daily

Staff Special

TULSA, May 20.—In the Stroud field, Lincoln and Creek countries, J. A. Hull Co. is drilling in its No. 1 Petty in the west half of NW 14-14-6. The well topped the sand at 4,060 feet and got lower pay at 4097 feet. It is drilling at 4,108 feet where the well is flowing 35 barrels an hour. The field is estimated to be producing 20,700 barrels daily from 14 wells.

It is reported that several additional pipe lines are being built or contemplated into the Stroud field. These lines include the Prairie, Sinclair and Oklahoma. Ozark Pipe Line Co. (Roxana) is adding to its facilities into the field.

An important Kay county wildcat six miles northwest of production in Tonkawa is the Alcorn Oil Co. (Marland) No. 1 Thomas in the SW of 15-25-2W. This well got what is believed to correspond to the upper Hoover sand at Tonkawa at 2,065 feet and at 7 feet in the sand is flowing about 300 barrels daily. The Alcorn's No. 1 North in the NE of 12-26-2W is reported to be spraying oil from the so-called Besdor sand at 1,760 feet.

In Tonkawa, the Pennok Oil Co. is getting the second well in the new deep sand, its No. 7-A Endicott being reported as having oil in the hole at a depth of 4,040 feet. Pennok officials estimate that another 20 feet will have to be drilled before big pay is found. This well is about one half mile west of the Slick well which discovered the deep sand.

In southern Oklahoma Humble Oil & Refining Co. has a well making better than 50 million feet of gas at 691 feet in its No. 1 Busby in the NE NW of 19-7S-5W, Jefferson county, on the Red river. This gas sand is found at practically the same depth in the Nocona district, 2½ miles south in Texas, where wells have been reported making as high as 100 million feet of gas. The Humble gasser is shut in and is supplying fuel to the company's drilling well in NW SE of 1-7S-6W.

Hambro Oil Co.'s No. 1-A Seay in NE SE of 33-6S-5W, Jefferson county, is estimated to be good for about 10 barrels in sand from 1,300 to 1,306 feet. It is drilling deeper for another sand expected to be at 1375 feet.

Magnolia Building Welded Line

Staff Special

DALLAS, May 15.—The Magnolia Petroleum Co., which is building an 8-inch welded pipeline from the Luling field, in Caldwell and Guadalupe Counties, to its Beaumont refinery, a distance of more than 150 miles has progressed with the work to the extent that it has 35 miles of the pipe already laid. The Magnolia expects to have this line in operation about August 1, according to D. C. Stewart, veteran manager of the pipeline department.

The Magnolia Gas Co., a newly formed subsidiary, is going ahead with construction of a natural gas pipeline from Webster Parish, Louisiana, to the Beaumont refinery of the Magnolia Petroleum Co., a distance of about 210 miles. This line will be built via Panola County, Texas. Upon completion, the Beaumont plant will be converted to natural gas fuel instead of oil.

TULSA, May 15.—C. L. Wingate, chief clerk in the production department of the Prairie Oil & Gas Co., is spending a two weeks' vacation with relatives in Coffeyville, Kan.

Tampico Exports For April

By Special Correspondent

TAMPICO, May 15.—Exports of petroleum and its products from Mexico in April totaled 13,473,910 barrels, showing a gain of 143,408 barrels over last month. Comparative figures by companies follow:

Company	March	April
Transcontinental Petroleum Co., (Standard of New Jersey)	3,428,818	2,779,388
Huasteca Petroleum Co., (E. L. Doheny Interests)	2,760,655	2,699,083
Mexican Eagle Oil Co., (El Aguila)	804,512	417,600
International Petroleum Co., (John Hayes Hammond)	373,169	226,172
Cia. Mexicana-Holandesa "La Corona"	951,364	2,070,211
Cias. del Agwi, S. A.	258,170	326,573
Mexican Gulf Oil Co.	1,583,749	904,809
The Texas Co. of Mexico	455,950	558,859
Sinclair Mexican Co.	787,141	1,614,708
East Coast Oil Co. of Mexico (Southern Pacific)	590,341	581,387
New England Fuel Co. (Magnolia Petroleum)	327,075	141,548
Pierce Oil Corporation	111,838	85,724
Interocean Petroleum Co.	61,854	125,724
Chaddick y Co.	89,934	117,400
Panuco-Boston Oil Co.	66,416	77,523
Cia de Gas y Combustible Imperio, S. A.	379,177	392,879
Mexican Atlas	35,048	147,213
Island Oil & Transport Co.	165,291	152,708
Penn-Mex Fuel Co.	.....	54,401
Totals	13,330,502	13,473,910

German Buys Exhibit Space

TULSA, May 17.—The first foreign manufacturer to reserve space at the International Petroleum Exposition, to be held in Tulsa Oct. 2 to 11, is Alfred Wirth & Co. of Erkelenz, Rhineland, Germany. This company has bought 200 square feet of space, and has advised Edward F. McIntyre, general manager of the exposition, that it will exhibit a model rotary rig of the type used in Continental operations.

The derrick will be 10 feet high. Each detail of the machinery will be shown, and the whole rig will be made accurately to scale. The outfit will be completely equipped as though for actual field work, and will be operated with an electric motor. The Wirth company, whose products are marketed under the trade name "Erkelenzer" has sent to the exposition offices a set of photographs of its extensive shops, showing "boring machinery" in all stages of manufacture.

Running Poison Spider Oil

DENVER, May 19.—The California Oil Co. of Wyoming recently began delivering 400 barrels of crude daily to the pipe line of the Fargo Oil Co. for transportation to Casper from its holding in the Poison Spider district west of Casper.

The deliveries are on an order for 250,000 barrels placed by the Midwest Refining Co. with the California Oil Co. some time ago. It is understood the price is $1 per barrel less pipe line charge of 30 cents, which will net the selling company 70 cents a barrel. The oil is of asphaltic base.

Lion Officials Inspect Properties

ELDORADO, ARK., May 17.—A party of 14 officials of the Lion Oil & Refining Co. has arrived in Eldorado on a special train from St. Louis.

The party included: E. C. Winters, president; F. H. Thwing, treasurer; E. D. Ellison, vice president and H. M. Evans, chairman of the board of directors.

Marland Takes Lease

LOS ANGELES, May 15.—The Marland Oil Co. of California, which has been leasing considerable proven and prospective oil land in this state lately, has just taken a lease on a piece of land in Sec. 16, 28-27, near McFarland.

In the Delano district, on its Cauley lease near Lerdo, the Marland organization is said to be under agreement to start its first well not later than August 7.

TULSA, May 17.—Edward F McIntyre, general manager of the International Petroleum Exposition, will leave tonight for the Cleveland convention of the Natural Gas Association, traveling in the special car with the Tulsa delegation. After the gas meeting, Mr. McIntyre will go to Bradford, Pa., for a short stay.

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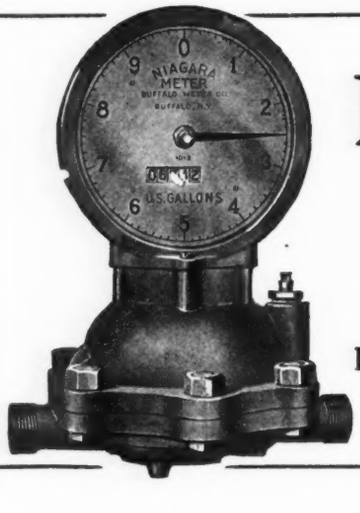

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Foreign And California Receipts Fall Off

NEW YORK, May 16.—Receipts of California oil (crude and refined oils) at Atlantic and Gulf Coast ports for the week ended May 10 totaled 875,000 barrels, a daily average of 125,000 barrels, against 908,000 barrels, a daily average of 129,714 barrels for the week ended May 3.

(Barrels of 42 gallins)

	Week Ended May 10	Week Ended May 3
At Atlantic Coast Ports		
Baltimore	90,000	.....
Boston	72,000	.....
New York	391,000	830,000
Philadelphia	77,000	78,000
Others	80,000	.....
Total	710,000	908,000
Daily Average	101,429	129,714
At Gulf Coast Ports		
New Orleans and Baton Rouge	165,000	.....
Daily Average	23,571	.....
Total Atlantic and Gulf Coast Ports	875,000	908,000
Daily Average	125,000	129,714

According to figures collected by the American Petroleum Institute, imports of petroleum (crude and refined oils) at the principal ports for the week ended May 1 totaled 1,618,000 barrels, a daily average of 231,143 barrels, compared with 2,143,000 barrels, a daily average of 306,143 barrels for the week ended May 3.

(Barrels of 42 gallons)

	Week Ended May 10	Week Ended May 3
At Atlantic Coast Ports		
Baltimore	60,000	349,000
Boston	221,000	210,000
New York	301,000(a)	491,000
Philadelphia	45,000	50,000
Others	191,000(a)	324,000
Total	818,000	1,424,000
Daily Average	116,857	203,429
At Gulf Coast Ports		
Galveston district	339,000	325,000
New Orleans and Baton Rouge	150,000	304,000
Port Arthur and Sabine district	194,000	90,000
Tampa	117,000	.....
Total	800,000	719,000
Daily Average	114,286	102,714
At All U. S. Ports		
Total	1,618,000	2,143,000
Daily Average	231,143	306,143

(a) Revised.

Buys Acreage From Midway

LOS ANGELES, May 17.—According to announcement from Bakersfield, Clarence J. Berry of San Francisco, well known in connection with the "Ethel D" oil properties in the San Joaquin Valley fields, has purchased three separate parcels of land from the Midway Oil Co. for about $500,000.

These lands lie in the Midway district, between Taft and Maricopa. One block, consisting of 80 acres, is the south half of the northwest quarter of Sec. 24, 12-14, lying southeast of Taft. Another block is the southwest quarter of Sec. 28, 12-14, lying due north of Maricopa. The third parcel is Lot 2 of fractional Sec. 28, 12-14. The deal is in escrow, reports from Bakersfield say.

U. S. Is Making Survey Of Northern Colo.

DENVER, May 16.—Considerable interest is manifested in the survey of northern and northeastern Colorado from the foothills on the west to the boundary line on the east which is getting under way under the direction of the United States geological survey.

J. D. Sears, administrative geologist of the survey, and James Gilluly, who will assist him are already in the field. This work will be later taken over by J. S. Mather, of the survey staff. They will not only make reconnaissance survey of the entire area, but will map the more important structures and seek data on sand depths, correlate the sands and seek other information much desired by prospectors in that district. The geologists will also work out data which is expected to be of benefit to the farmers in locating water wells for irrigation and domestic purposes.

Magnolia Pipeline Runs Drop In April

Staff Special

HOUSTON, May 15.—The Magnolia Petroleum Co., pipeline department announces from Dallas headquarters the following crude oil runs for April, which are shown in comparison with March:

	March	April
Hewitt	182,269.72	208,867.64
Healdton	227,073.38	229,578.46
Cushing	167,593.46	163,906.79
Yale	65,221.27	62,933.91
Cement	33,500.21	26,814.34
Duncan	79,737.42	77,114.35
Augusta, Kans.	36,843.95	36,865.24
Walters-Beaver Creek	10,407.79	11,550.77
Bristow	50,727.00	41,245.42
Burbank	170,001.69	194,664.69
Wewoka	47,891.88	76,004.09
Totals Okla.-Kans.	1,071,267.77	1,129,545.70
Thrall	1,724.10	2,116.38
Electra-Burkburnett	244,154.04	231,740.04
Henrietta	4,574.76	6,240.20
Corsicana Heavy	10,939.84	9,414.17
Corsicana Light	331,618.15	184,654.47
Comanche (Desdemona)	66,614.04	62,647.71
Olden (Ranger)	26,464.02	24,319.11
Stephens County	35,400.35	47,217.97
Coleman County	553.31	716.23
Mirando	43,230.12	32,450.19
Mexia	65,823.99	65,574.73
Luling	286,090.93	252,565.31
Total Texas	1,117,187.65	919,656.51
Havnesville	12,007.73	8,528.42
Bull Bayou	28,299.19	26,661.78
Total Louisiana	40,306.92	35,190.20
El Dorado Light	32,578.20	36,583.59
East El Dorado	39,335.85	13,379.53
Total Arkansas	71,914.05	49,963.12
GRAND TOTAL	2,300,676.39	2,134,355.53

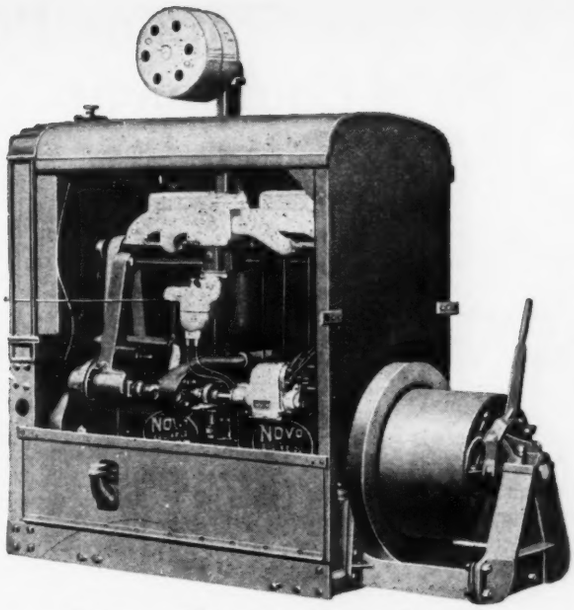
Stocks and shipments for April are reported as follows:

TEXAS

Month of April, 1924			Daily Average
Wichita and Wilbarger Counties	Runs	231,740.04	7,724.67
	Shipments	237,509.16	7,916.97
Petrolia	Runs	6,240.20	208.01
	Shipments	7,008.27	233.61
Eastland and Stephens Counties	Runs	134,184.79	4,472.83
	Shipments	78,656.42	2,621.88
Total Stock Field.	2,786,973.07	North Central Texas	

OKLAHOMA-KANSAS

Report for April, 1924		Daily Average
Runs	1,129,545.70	37,651.52
Shipments	1,027,936.34	34,264.54
Stocks	8,342,029.51	



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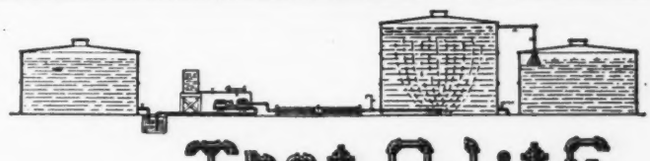

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Agree On Specifications For Oil Field Equipment

By Paul Wagner
STAFF REPRESENTATIVE

HOUSTON, May 19.

UNANIMOUS agreement upon specifications offered was reached at last week's meeting in Houston of Captain J. F. Lucey's committee on standardization of oil field equipment of the American Petroleum Institute. Nearly every large supply company in the country was represented.

Action also was taken looking toward standardization of derricks and it was decided to recommend both wood and steel derricks with 20, 22 and 24-foot bases and five-foot tops.

Steps were taken to notify cable tool people of the committee work regarding derricks.

Power shafting and transmission shafting sizes were agreed upon. Investigation showed only about 15 sizes constituted the main volume of shafting manufactured. Tolerances allowed on transmission and machinery shafting as reported by the American Society of Mechanical Engineers on transmission shafting, machinery shafting, square key stock and flat key stock were as follows:

Up to and including 1 1/16-inch, tolerance of .002; from 1 1/16 to two-inch inclusive, .003; from 2 1/16 to four-inch inclusive, .004; from 4¼ to six-inch inclusive, .005.

On square key stock up to ¼-inch, tolerance of .002; from ⅛ to ⅜-inch .002; from ½ to ¾-inch, .0025; from ⅞ to 1½-inch, .003.

A general discussion took place regarding fish tail bits, water courses and similar subjects. It was recommended that standardization be made on the tool joint taper on fish tail bits the same as on swivel connections. Captain Lucey asked engineers on the committee to work out fish tail bit threads independent of tool joint connections. It was finally voted that a committee work up specifications on threads and joints on drill collars as well.

Hose nozzles and clamps were discussed in general. It was voted that the hose manufacturers be approached by the institute representatives and asked for their opinion regarding the length of the reinforçement, the ply of the ends, the inside and outside diameters of two-inch by 2½-inch hose.

The following letter on the standardization of chains was read by the chairman of the committee on chains:

"At the present time there are manufactured, principally in connection with rigs in California, two chains very similar in appearance to the present standards No. 1030 and No. 1240. The chains used largely in California at the present time have dimensions given herewith:

"Their so-called No. 1030: Pitch, .30877. Roller 1 1/16-inch diameter by 1 1/16 inches wide.

"Their so-called No. 1240: Pitch, 4.0883. Roller 1⅞-inch diameter by 1⅞-inch wide.

"From the standpoint of the theory which largely regulates the practice it is impossible to design and successfully operate sprockets which will accommodate those chains largely used at the present time in the Mid-Continent fields and in some measure in California, with those chains.

"The so-called California chains, you will note from comparison of dimensions, are not only longer in pitch but the roller diameters are of increased size.

"The situation with reference to sprockets becomes more acute as larger numbers of teeth are employed in sprockets for either size of chain.

"As stated, a sprocket which will operate satisfactorily with one type of chain will not operate satisfactorily with the other and if practice is resorted to whereby it is recommended to an operator that either chain may be used on the same sprocket, it is unsound and incorrect, and trouble can be expected in connection with either element which goes to make a complete drive. As stated in our earlier letter, and in the open discussion that ensued, we recommend that but one chain of each number be manufactured and that this size should be adopted as the A. P. I. standard.

"If the matter of passing judgment is to be left in the hands of the operator, justice cannot be done to the various manufacturers of chains and sprockets if the elements constituting the drive are not designed in accordance with the same standards of pitch and roller diameter.

"Our further recommendation is to the effect that the design of sprockets should be examined more closely in an endeavor to design the tooth forms so as to provide a compensating feature which will not only benefit the severe action of the chain itself, but which will also reduce the severe impacting at high speed which is so destructive to some of the present forms of sprocket teeth."

This letter was signed by representatives of the leading chain companies.

A committee was appointed to recommend the sizes of draw works which might be universally used, having in mind the different localities, which recommendations were to be submitted to the committee.

These recommendations are to be based on approximately six shafts, five-inch drums and five-inch shafts and 4½-inch drums and four-inch shafts or whatever would be a suitable basis with a variation of ⅛ inch up to four inches; ¼ inch up to six inches and ½ inch over six inches.

Steps were taken to determine a suitable fish tail bit shank for the Gulf coast division.

Lengthy discussion took place regarding threads on tool joints. It was announced that at a meeting of the board of directors of the Hughes Tool Co., held expressly for that purpose, it was decided to waive all question of royalties on the well-known "acme thread" and turn over all threads patents to the American Petroleum Institute to be used as it saw fit. The appreciation of the committee to the Hughes Tool Co. was expressed.

It was voted that the method of designating size of sheave as adopted by the rig iron committee be used: Namely, that the size of the sheave groove be determined by the diameter of the bottom of the groove of the sheave.

The question of the rating capacity of casing hooks was left up to engineers of the committee.

Bill On Indian Leases Going Through Mill

WASHINGTON, May 19.—Before it can become a law, the senate must reconsider its action taken Thursday night in passing a bill authorizing the secretary of the interior to lease, for indefinite periods, unalloted Indian lands for oil and gas purposes.

The house already has passed the legislation and similar action secured in the senate so the bill might be forwarded to the president without further delay. It came to light the following day, however, that instead of passing the house bill, which the senate Indian affairs committee had reported, the senate passed another similar measure which has not been acted on in the lower branch.

As a result, the house committee will demand action on its own measure, so as to avoid the necessity of a conference which would make for more delay. Senate action probably will be taken next week when the calendar is taken up again.

The proposed law would affect all unallotted Indian lands except those of the five civilized tribes and the Osage reservation, where oil and gas leases are made under special regulations. Its purpose is to give the interior department authority to renew present leases for another period of 20 years and to make new leases of lands for mining purposes for "so long a period as oil and gas is found in paying quantities."

The house bill contained an additional provision permitting the state wherein the lands are located to take the production of minerals including the royalty interest of the Indians. In passing its bill, the senate omitted this provision which would necessitate a conference.

Great Events and Important Questions of 1924

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AFTER

OUR RED PACKER HAD BEEN SET — ALL QUIET, SERENE AND HAPPY.

I. C. C. Rules Against Extra Rates On Reconsigned Shipments

By A. E. Heiss

STAFF REPRESENTATIVE

WASHINGTON, May 15

THE present practice of the railroads in handling diverted and reconsigned shipments, which is sometimes used by consignees to get a better price on the shipment, through the refiner's knowledge that, if it is refused and shipped elsewhere the freight bill will be added to materially, is to be changed, effective July 24.

This is by order of the Interstate Commerce Commission, acting on formal complaint of the Western Petroleum Refiners' Association, alleging that the present code of diversion and reconsignment rules is unreasonable. The railroads are to be forced by the commission to put into effect the same procedure they apply in handling other freight.

This will permit a tank car to be shipped from a point where it has been refused by the buyer at the rate which would have applied from the point of origin to final destination, plus a charge of $6.30 per car for the cost of clerical labor and switching at the point of rejection.

As the rule now stands, it plays into the hands of the dishonest buyer. It provides that, where a car is reconsigned from the first billed destination, to a destination beyond the yard limits of the first destination, the local rates to and from the first billed point, plus $6.30 per car, shall be exacted. By rejecting the car, the buyer can force the seller, either a refiner or a jobber, to run the risk of having as much as $327.33 added to the freight bill on a single car. Usually the possible penalty, in case the car must be sent to another buyer, is about $75. The testimony showed a large number of cars with penalty charges ranging from $44.50 to $134 and one showing the extreme penalty of $327.33.

Freight other than petroleum and its products avoids that penalty by the simple device of the consignor or consignee having the car set upon a public team track. Petroleum products, however, owing to laws, ordinances and regulations, may not be set upon tracks where other freight is placed.

A dishonest buyer, knowing how much more it will cost the seller to send the car to some other point, can reject the shipment, after it has been placed on a private sidetrack belonging to an oil company and then negotiate with the seller for a reduction in the price about equivalent to the amount it would cost the seller to get the rejected car to some other point.

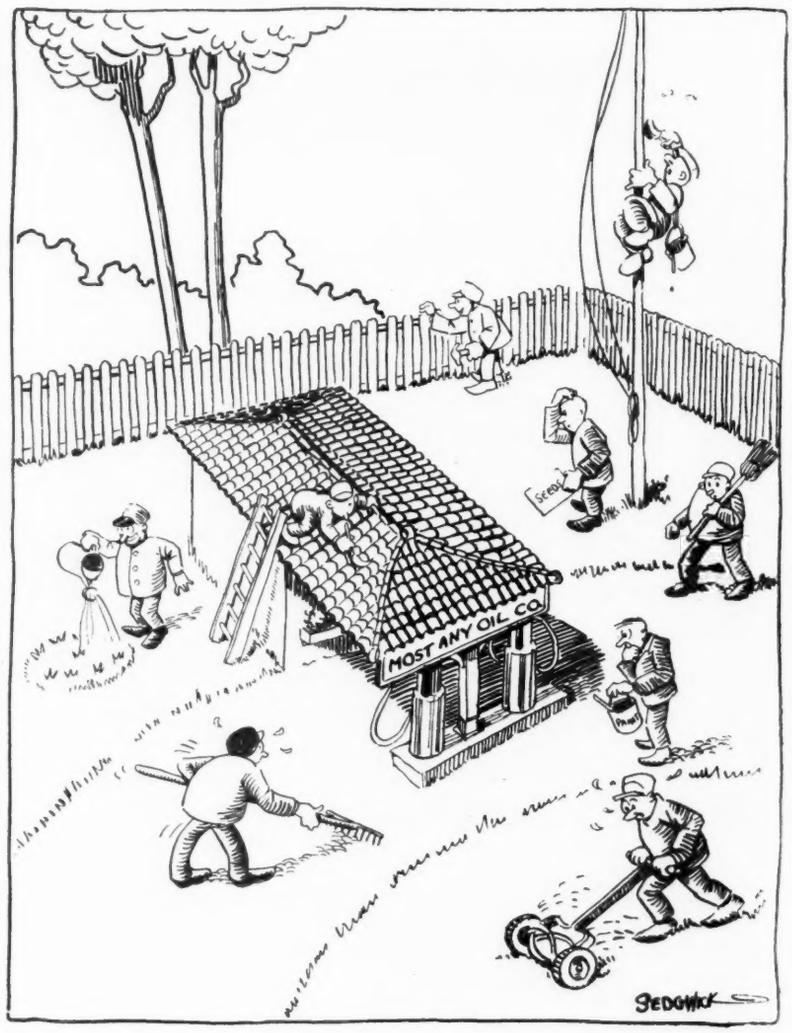
The rule, however, works hardships on the seller, even if the consignee who rejects is honest, because the penalty is imposed if the tank must be sent to some point outside the yard limits of the place to which it was first sent.

In changing the rule, it was necessary for the Commission to retrace its steps and modify a decision it made in what is known as the big reconsignment case. In that case, in the war period, the Commission held that, if a carload of freight was not accepted at the point to which it was first sent, it should pay the local rate to the first billed destination, and then the local rate from the first to the second billed destination, plus the fee of $6.30. That arrangement was made on the theory that it would tend to conserve railroad equipment.

In the consideration of the complaint brought by the Mid-Continent refiners, the point was made that, generally speaking, tank cars were furnished by the shipper and that abuse of tank cars, in the way railroad-owned cars were abused, was not one of the things to be expected and that therefore the rule should be abrogated and conditions made possible where oil would be handled, in so far as rates were concerned, the same as any other freight.

In disposing of the case created by the complaint, the Commission said:

"Complainant further urges that, due to the fact that petroleum moves from points of production to destination as a regular movement under commodity rates; and that most reconsignments are made at points where petroleum is not produced and no commodity rates are in effect, class rates from the reconsigning points are assessed which are not commensurate with the service rendered and are out of line with rates for corresponding distances from producing points from which commodity rates apply. In official classification territory the rates for the transportation of petroleum and its products are, in most instances, made with definite relationship to the class rates from and to all points, and the same objection apparently does not apply.



Spring House Cleaning Days

THE EDITORS' VIEWPOINT

Co-operation In Oil Production

COOPERATIVE effort in producing oil is a thing long talked of and for the greater part visualized as an ideal to be attained in some vague Utopia. There are signs now, however, that it is on the way.

Of course there has always existed a certain measure of cooperation. Producers have been fairly liberal throughout with their information and ideas. They have come to the assistance of each other in times of stress and aided each other in lending equipment needed in a hurry.

The cooperative effort here referred to, though, is the joining of forces in the interests of economy and conservation. Oil producers have always deplored the drilling of unnecessary wells—wells that added nothing to ultimate recovery from the field and only increased greatly the cost of recovery, to say nothing of the actual losses on many wells.

A description of the plan worked out by the Union Oil Co. of California for the operation of the Wellington dome in northern Colorado was described in a recent issue of this journal. The company drilled in a large gas well on this dome last November, the showing of which indicated an oil field of considerable proportions is to be expected.

Immediately the Union started to work out a plan whereby it could develop the field from the lowest closing contour toward the center, in order to conserve the pressure and thus decrease the cost of producing the expected oil. It did this by a consolidation of the royalty interests in the field on a basis that will yield dividends to each royalty holder regardless of where the production is coming from.

In this instance the problem, while difficult enough, was not so great as where a large number of working interests are interposed. The Union was the lessee of the greater part of the structure—of nearly all that may be productive—and the royalty owners were the only ones to deal with.

There comes to hand now another instance of where producers are joining forces to effect a result desired by all of them. In the Marietta district of southeastern Ohio the operators have long wished to see a deep test put down to test the Clinton sand which is a large producer of oil and gas farther north. Such a test would probably go to 6000 feet and would run into more money than any one operator cared to spend, considering the fact that the acreage is pretty well divided.

Not long ago the operators who are in the old Macksburg pool of Washington and Noble counties, Ohio, got together and surrendered to the new company which was set up the rights to everything below the Gordon sand on their properties. This takes in an area about five miles square. In return for such surrender of rights to the deep sands the new company, known as the Macksburg Deep Sand Co., issued to the operators stock in the company on the basis of one share to each 10 acres put into the pool. The proposal now is to give a block of stock in the company to a contractor in return for drilling a well or wells.

If production of oil or gas is found each operator who is a stockholder will benefit in proportion to the amount of stock he holds. Royalty owners in this case are taken care of in the usual way, according to our information, their payment being made only from revenues from gas or oil produced on land to which they hold the fee title. Some of the land put into the company was held by farmers to whom mineral rights had reverted as the territory proved unproductive in the shallower sands and in such cases the farmers were dealt with in the same manner as the oil producers.

The plan had its inception some months ago when Earl L. Stephens, producer and contractor of Marietta, asked operators to assign to him a one-half undivided interest in everything below the Berea sand. There was some dissenting to this and recently the amended plan was proposed by O. C. Dunn, of Marietta.

The two cases cited—the Union's plan and that in southeastern Ohio—show an interesting and most commendable trend of operating thought in the industry. There are no insurmountable obstacles to extending some such plan to the operation of present productive properties. All over the country there are pools of small yield, with properties in the hands of many operators. Each operator handles his own business—his investment includes cleaning out strings and any other equipment needed to handle his property. Suppose the cooperative effort were extended only to joint ownership of a string of tools, it would afford a big saving to all concerned.

The business of producing oil, like farming, is at present highly individualistic. Like farming, again, it is bound to change sometime and with definite examples now before the industry the probability is that the next few years will see a considerable uniting of forces the country over.—L. E. S.

The Industrys Fire Loss

THE handling of petroleum products contributed over ten million dollars in 1922 to the total bill for fire losses the nation sustained of over a half billion dollars, almost ten per cent increase over the year preceding.. This is according to the figures of the National Board of Fire Underwriters. From another source the fact is given that out of 39 fires in 1923 which caused a loss of a million or more each, the oil industry sustained eight in refinery and oil field fires.

The oil business has a few fires each year that come, like acts of Providence, from forces over which man seems to have little control, breaking of hot vapor lines at refining plants, attraction of lightning to storage tanks in oil fields and so on. But there are hundreds of fires of lesser individual importance, but entailing heavy aggregate loss, due to that greatest enemy of the American workman—carelessness.

Read the reports of any insurance company handling oil company risks to find how many fires start from waste thrown into a corner, instead of a metal receptacle, from sloppage of oil or grease, from rubbish and weeds in plant yards; all causes that could have been removed by a bit of thoughtfulness on the part of any one of many executives and employes.

If every man would make it his own business—and not the company's business or the oil industry's job—to see that such fire hazards were reduced the results would be startling. And we could well depend on engineering departments of oil companies and manufacturers of equipment the industry uses to look after the task of reducing the chances for fire from causes now looked upon as pretty much outside human control.—V. B. G.

Today approximately 2450 calls are being made, in this country alone, by Bowser sales representatives.

That is why we occasionally venture to remind oil company executives of the ***personal cooperation*** we can give, in making it easier for automobile owners to buy your brand of gasoline and oil.

Our men are experienced—observant—anxious to help you sell. They are trained in two Bowser schools—the one we have in our offices, where our older men are instructors, and the one where experience herself is the teacher.

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And, finally, our men are constantly supplied with leads for new locations—men who want to become gasoline retailers and thus will be *your* customers.

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Evidence Of Trade Body's Unfair Dealings

OIL men everywhere should be particularly interested in the news from Washington that the Federal Trade Commission has undertaken a campaign of propaganda to the end that it may get more power for itself.

The commission would like to be the supreme arbiter and dictator to American business. It resents the limitations Congress put upon its activities, when it was established, resents the fact it has at present little or no executive authority, and that the Supreme Court has on more than one occasion restrained its efforts to reach out and take upon itself authority the commission was not granted when it was formed.

If its members believe they can muster sufficient interest in Congress there will be a move for additional legislation increasing its powers and appropriation from public funds for carrying them out. There are evidences that propaganda is being carried on by the commission to interest Congress in its behalf.

Numerous evidences are at hand to show the unfairness of the commission's attitude towards the oil business, and industry, particularly. It is in the petty misconstruction of facts, the wilful warping of true conditions, that the commission is most pernicious of governmental agencies, even in official Washington, where the spirit of fair play is sadly lacking in the putting forth of statements to the public.

An enlightening example of this is given by Amos L. Beaty, president of The Texas Co., in a statement on the commission's relations to this company in the May issue of the Texaco Star, the company's publication for its employes. Any newspaper in the land, if it had made the statement concerning the stock ownership in this company that the commission did in its report of gasoline prices in 1917, based on as absurd a means of arriving at this conclusion, would have laid itself wide open to libel charges. But it is hard to conceive of a newspaper editor, however radical his tendencies, in the knowledge of the legal responsibility his paper must assume, following the same course of procedure.

It will be recalled the commission in that report stated that Standard stockholders owned about 25 per cent of the stock of The Texas Co., which has brought about wide belief The Texas Co. was controlled to some extent by the Standard Oil companies in some way. President Beaty himself went to Washington to find out how the commission had arrived at this conclusion and here is what he learned.

The commission had required the various oil companies to furnish lists of their stockholders. In 1915, when the commission made its investigation, 27 per cent of Texas Co. stock was held in the names of brokerage houses, which houses did not own the stock themselves but carried it on margin for their clients, a most familiar method of handling stock deals in all lines of securities.

The commission's agents compared these lists of stockholders for the larger companies and found about 25 per cent of The Texas Co. stock held by brokerage houses which also appeared on lists of stockholders for Standard Oil companies; that is they were also holding stock in some one or more of the Standard companies on marginal deals, along with stock of iron and steel companies, railroads and securities in other lines.

Texas Co. stock might have been held, along with some Standard Oil stock, at that particular time for some individual speculator, or it might not. The two stocks might have been held by entirely different parties. The commission had no way of determining this except by going over the books of the brokerage concern. At any rate, from the nature of the transactions it was pretty obviously purely speculative on the part of the individual investor for all stocks so held.

Yet the commission put down every share of Texas Co. stock held by such a brokerage concern as held by a stockholder in a Standard Oil company.

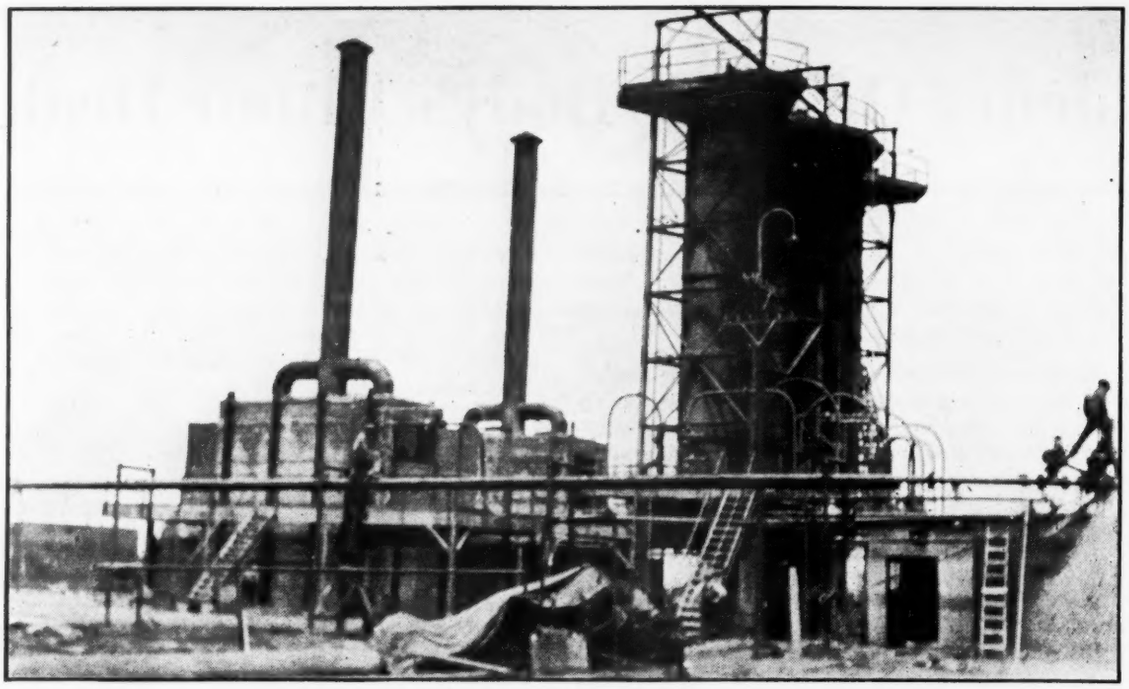
"This was done," says President Beaty, "although the client for whom the house carried our stock owned none of the other stock and the house itself owned none of the other. As nearly as could be made out practically none of our stock was held by those who were stockholders of any Standard company outside of brokers. Inevitably, when there is a substantial number of stockholders, it will occur that some investors in a company like ours will also be investors in other oil companies.

"But there was no indicaton that any holders of a substantial block of any Standard company, or any officer or dominant stockholder in that group held any shares in our company. The commission could just as well have said that 20 or 25 per cent of our stock was held by stockholders of the U. S. Steel Corp. or by stockholders of any one of the great railroad systems of the country. The commission was requested to correct its findings, or at least supplement them by a statement of the facts in full, but this it declined to do."

As an instance of the widespread effect of this statement, which is unnecessary to most readers of this publication, Mr. Beaty goes on to say a college professor made the statement to a class, which included one of his daughters, that The Texas Co. was controlled by the Standard Oil Co., citing the commission's report.

But this is not the only experience this oil company has had with the commission, President Beaty tells, and it is likely that other of the larger companies can verify this charge of unfair and unlawful dealing on the part of the trade body. Although the U. S. Supreme Court, in a decision March 17, this year, in the case of the commission against the American Tobacco Co., denied the right of the commission to go on fishing expeditions through the books and records of a company, in the hope of finding something that might disclose evidence of crime, which constitutes in fact an unreasonable search, as set forth in the fourth amendment to the Constitution, agents of the commission on subsequent dates applied to offices of the company at Chicago and Houston for the privilege of going through its files on a general search for letters or data that might be used against the company in the commission's current investigation of gasoline prices.

Hardly an oil company operating nationally in scope that has not had some instance of unfair handling by the Federal Trade Commission's agents. Oil men everywhere should bear in mind that it is this same commission that is now launched on a more or less subtle campaign of propaganda to induce Congress to give it more power and authority and appropriate public funds to allow it to carry out its ideas of regulation of business, ideas from the same minds that operate as described above.—V. B. G.



Furnaces and vertical reaction chambers at Louisiana Oil Refining Corp. installation of the tube and tank process. Note the four vertical reaction chambers at right of furnace, two for each unit. The reaction chambers are made of two-inch steel plate.

Installs Two Tube And Tank Cracking Units

By J. C. Chatfield

STAFF REPRESENTATIVE

SHREVEPORT, May 16 THE Louisiana Oil Refining Corp. is completing the installation of two units of the Tube and Tank process developed by the Standard Oil Co. of New Jersey. Equipment is nearly all in place and a test run will be made within the next few days.

The Louisiana installation is the first to be made of the New Jersey process in an Independent refinery in the Mid-Continent. Its performance will be watched with interest by refiners in the district.

The cracking plant is located at the Bossier City lubricating oil plant where the Louisiana Company has a 240-acre tract on which it eventually expects to erect a skimming plant to supplement the present lubricating oil refinery.

Inspection of the nearly completed cracking plant reveals how similar the tank and tube process is to the Cross process which is largely used in Independent plants in the Mid-Continent.

Furnaces in which the cracking stock is heated to a high temperature while being circulated through small tubes, appears almost identical with the Cross furnace.

Vertical Reaction Chambers

Reaction chambers provided for the tube and tank process are different in construction and arrangement from the familiar gun barrel reaction chamber of Cross. Two reaction chambers installed vertically, are provided for each unit of the New Jersey process as compared with one for Cross. The reaction chambers are of two-inch steel plate constructed to withstand the working pressure of 350 pounds with a safety factor of six.

Connections between furnace and reaction chambers are arranged to give a number of operating choices. They may be used singly, in pairs or in series. Operators familiar with the process assert that with two reaction chambers the process has great flexibility in meeting varying conditions. The Dubbs process has recently been slightly changed to achieve the same result.

With two reaction chambers the operator is able to prolong the length of time during which hot oil remains in the reaction chamber or "soaking drum" without cutting down the capacity of the unit.

As in the Cross process, pressure is released as oil leaves the reaction chamber and the oil is immediately vaporized in an insulated still or separator tank. Oil reaches this tank at about 600 degrees F., which is high enough for vaporization without additional heat being applied. The separators are connected with fractioning towers which knock back heavy ends from the gasoline vapors which are passed on to condensers and thence to rundown tanks.

It is claimed for the New Jersey process that it permits the handling of a larger amount of cracking stock per day than many other processes. At the Louisiana plant it is expected that the two units will handle from 2000 to 3000 barrels per day.

Cracking stock for the plant now under construction will be piped from the Shreveport refinery of the same company. The plant will make tests on Smackover and Haynesville residuum as well as on gas oil.

D. F. Gerstenberger, who was formerly connected with various refineries of the Standard Oil Co. of New Jersey, is superintendent of the cracking plant. He is devising a new method for treating the cracked gasoline to be produced.

Transferred To Texas

AMARILLO, TEX., May 15.—"Bill" Raymond, superintendent of operations of the Producers & Refiners Corp. in New Mexico with earlier headquarters at Gallup, has been transferred to Amarillo where he will have supervision also of work in the Panhandle section of Texas. Mr. Raymond, who came to the Rocky Mountain district 10 or 12 years ago from Bradford, Pa., completed the famous Wertz gasser for the Producers & Refiners Corp., in Wyoming, afterwards brought in a 72 million cubic foot gas well for the company in the Ute Reservation in New Mexico and is widely known in the territory south from Casper to the Panhandle.

Industrial Notes

The U. S. Flexible Metallic Tubing Co. of San Francisco with branches at Los Angeles and Seattle Wash., recently completed arrangements through C. L. Reeder, manager of the oil equipment department of the A. Y. McDonald Manufacturing Co. of Dubuque, Ia., to handle the latter company's complete line of oil equipment on the Pacific coast.

T. J. Stephens is president of the U. S. Flexible Metallic Tubing Co., with headquarters at 65 Main st., San Francisco. F. A. McDonald is in charge of the business at the San Francisco office. M. F. Cralle superintends the business at the Los Angeles branch, with Norman Campbell handling the sales. J. A. Strehlow is manager of the Seattle office at 110 Main st. During the San Francisco World Fair, Mr. Strehlow was in charge of the palace of machinery.

The A. Y. McDonald Manufacturing Co. maintains factory branches at Omaha, Neb., Des Moines, Ia., and Minneapolis.

* * *

Allen-Bradley Co., Milwaukee, Wis., has recently placed on the market a new and complete line of resistance starters and across-the-line switches for induction motors. The type J-1552 across-the-line starting switch as well as type H-1852 semi-automatic resistance starter are made for motors up to 50 h. p. The automatic resistance starter, designated as type J-3052, is claimed to be superior to the automatic compensator due to the smoother acceleration and reduced current inrush when switched from starting to running tap.

* * *

The **Ohio Electric & Controller Co., Cleveland, O.,** manufacturers of small motors and lifting magnets, has just published Ohio Motor Bulletin No. 204, which describes the Ohio fractional size A. C. and D. C. motors designed for application to pumps, machines and other devices. It also has just off the press the Ohio Motor Application Bulletin illustrating various applications of its motors.

* * *

The **Edward Valve & Manufacturing Co.** will have ready for distribution on May 15 a new catalogue No. 8, which is fully descriptive of its line of valves. The company will be represented in the New York district after May 1 by The Dunbar Engineering Co., 50 Church street, New York City.

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Advance quality and dependability are helping many marketers and jobbers to increased sales and prestige. Get acquainted with Advance products and service!

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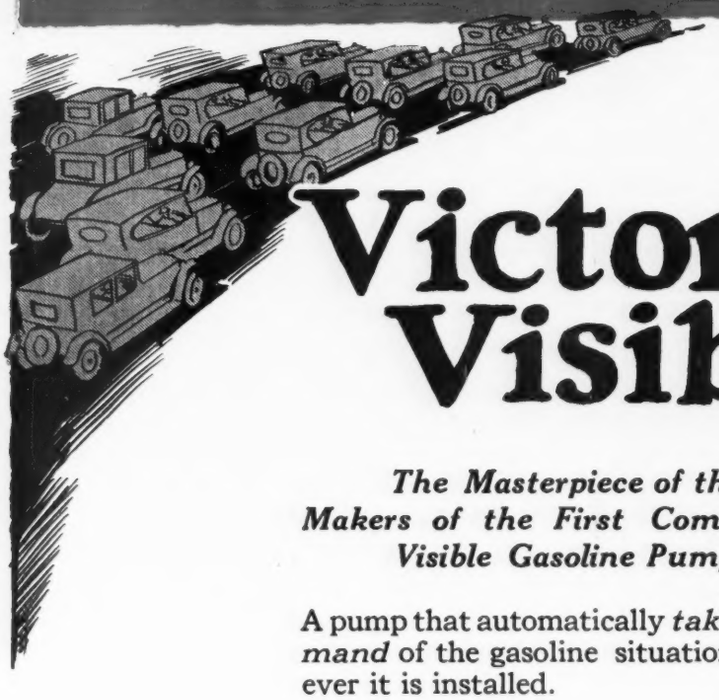


Victory Visible

The Masterpiece of the Makers of the First Commercial Visible Gasoline Pump

A pump that automatically *takes command* of the gasoline situation, wherever it is installed.

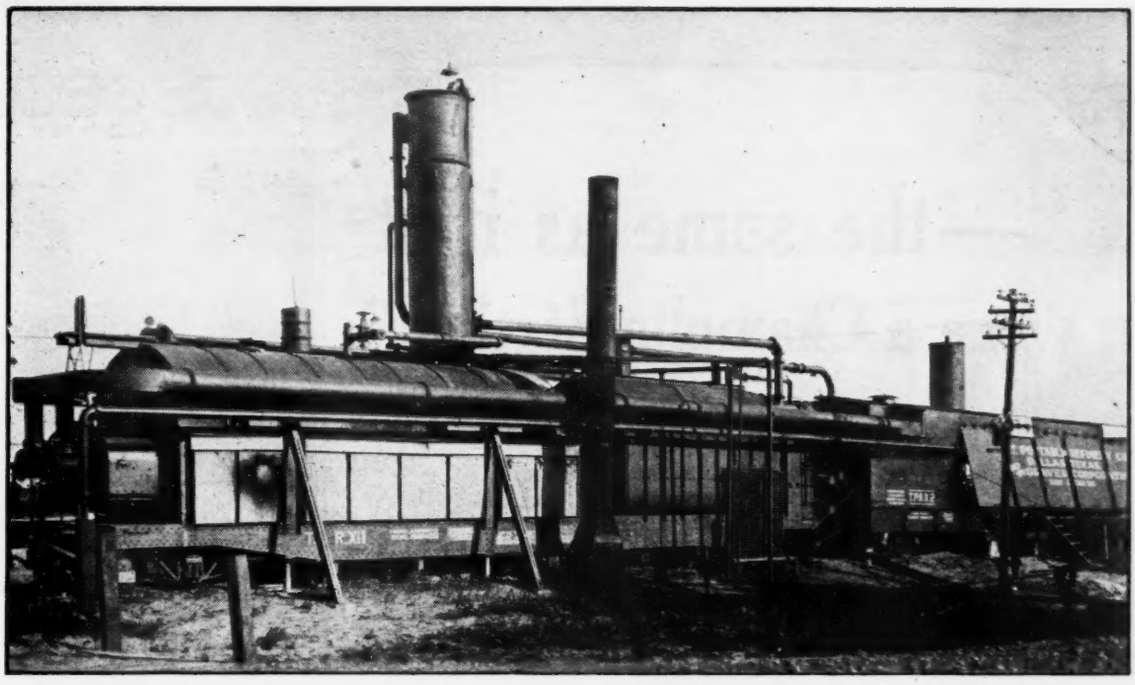
All other pumps—visible or "blind" —look cheap beside it.

Motorists who have become converted to the visible idea (their number is steadily increasing) pass numerous other pumps in order to *"See what they get and get what they see"*—at a Victory Visible. And even patrons who seem indifferent to the protection of visible dispensing give their preference unconsciously to this big, handsome, impressive Tokheim masterpiece.

The slight *difference* in its cost is, therefore, a continual dividend-paying investment to the service station and to the refiner or marketer whose gasoline it dispenses.

It is furnished in either motor or hand-operated types. When sending for our Victory Visible Bulletins say which type you prefer.

Tokheim Oil Tank & Pump Co.
Fort Wayne, Ind. U. S. A.



The Graver Corporation's Refinery on wheels.

Topping Plant Built On Railway Cars Now Operating In Texas

By Ward K. Halbert

STAFF REPRESENTATIVE

CHICAGO, May 15

EARLY in March the Graver Corp., at East Chicago, Ind., completed a portable refinery and it is now in operation at Luling, Tex., (Caldwell county) having traveled more than 1,200 miles on its own wheels before receiving its first charge of crude oil.

The little plant holds an unchallenged position as the most conspicuous novelty in the oil industry today. No publicity accompanied its completion; there was no formal unveiling, and the band did not play when Graver's switch engine pulled the job out of the yards. Everything was kept quiet as far as possible until the machine was proven useful.

Several revolutionary features are embodied in its construction, wholly aside from the fact that it is mounted on specially constructed steel railway cars. Some of these features represent increased efficiency and greater economy of operation as a refinery. It was not built for a novelty, but represents a vast amount of studios research, money and labor. It is designed to meet a long-felt need in the field of oil production, the idea in its present form originating with Thomas W. Sowell, of Sowell Brothers, Dallas, Texas, about three years ago.

Keeping it separate from his other interests, Mr. Sowell organized the Portable Refinery Co., and as such contracted with the Graver Corp., to build a portable refinery, mounted on flat cars. That was in the spring of 1922, and since then the work has proceeded with all scientific deliberation. Recognizing that the work was not a mere matter of making a little skimming plant so small it would sit on a flat car, the unusual engineering feat was undertaken. The Koppers Co., of Pittsburgh, Pa., is credited with having designed the unusual scientific characteristics of the plant.

Mr. Sowell's Vision

The "portable refinery" idea is not a new one. In fact it was more talked about in 1920 than now, but unfortunately the first ones were built rather to talk about than to use. North Texas promoters had built several small refineries and sold stock on the strength of their photographs. The irony of it was, that they were economic failures and were remarkable only because they were miniatures. On the whole, their inevitable failure did the idea more harm than good, but Mr. Sowell persisted and did not rush his plant to completion.

In his oil field experience he had recognized the need of a portable skimming plant. When a new field comes in, there are no pipe lines and storage is limited. It takes six months and costs $200,000 to build a stationary skimming plant to handle the flush oil and in the mean time much of it goes to waste. While this oil is wasting or standing in storage with its valuable light ends evaporating, gasoline is in demand on the ground. Invariably a new field in any community taxes all normal facilities of transportation. Traffic becomes heavy over night, gasoline is always in demand and hard to get. Mr. Sowell saw a chance to make a market for the cheap flush production and supply motor fuel to the fleets of trucks on the ground by designing a refinery to reach the scene by rail on short notice.

The Plant Completed

According to the original estimate of the Graver Corp., the portable refinery would cost $60,000 to build. The actual cost of the completed plant is not known but it is understood to have exceeded the first estimate. It will go anywhere a train will go and is not detached from its trucks to operate. When being rigged up to operate the refinery is jacked up, taking the weight off the wheels while it is stationary, but there is no tedious process of unloading. It moves from one field to another with virtually no loss in salvage.

The process of moving consists of dismantling the detachable equipment such as pipe connections, smoke stack and rectifying tower, coupling up the two steel cars, carrying the permanently attached equipment, to a freight train

"—the same as if it were a Champlin Station."

The Champlin refinery is a JOBBERS refinery—operating to give a limited number of quality oil jobbers the best quality of petroleum products obtainable—to work with them just as closely as if their individual, privately owned businesses were part and parcel of our own company. That our customers appreciate our personal interest in their success is brought out clearly in this testimonial, recently received:

"I certainly appreciate receiving your fine letter of the 7th instant. I value it because of its being so candid and straight-forward. It makes me have that much more confidence in you. I want to assure you that it is my intention to give you all of my business and that this station will be really the same as if it were a Champlin station. I know you will give me the very best QUALITY, both gasoline and kerosene."

You, too, will like Champlin Products and the Champlin way of doing business. Put your needs up to us now, for careful, efficient, INTERESTED handling.

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- Neutrals
- Viscous Neutrals
- Petrolatum
- Paraffin Wax
- Motor Oils
- Tractor Oils
- Steam Cylinder Oils

FOR EVERY USE
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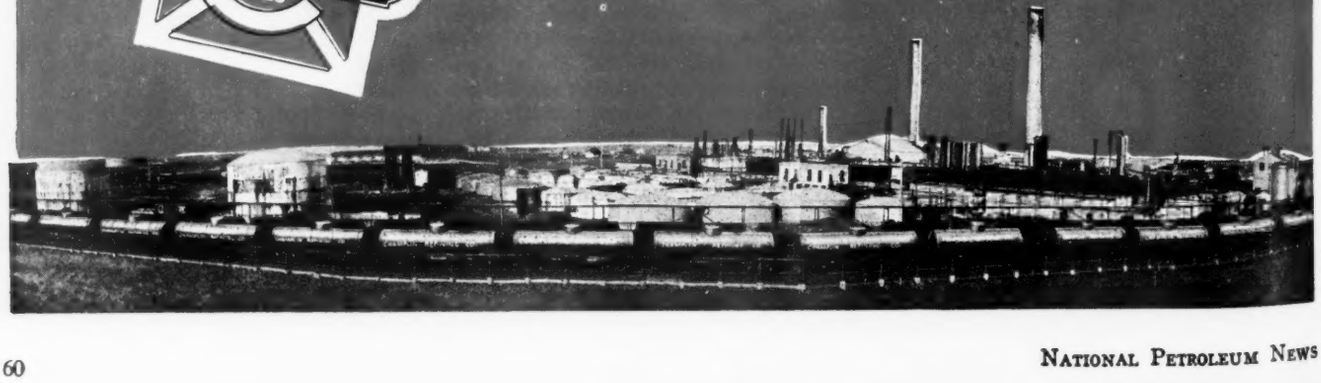

and consigning the plant to its destination. It can be placed in operation on a new site within eight or 10 days after the cars on which it is built have been spotted. Four or five days are required to dismantle connections and move away from a place when it is no longer profitable to operate there.

The capacity of the plant as it stands now is 1,000 to 3,500 barrels a day, dependent upon the per cent of distilled product. Two men to the shift are necessary to operate it. Among the unusual features of the process are the air-cooled condenser. Air instead of water is used in the condensation of vapors. The air is drawn through the space between the coils by a suction fan 70 inches in diameter. Air is also used to atomize the fuel oil for the burners, and for combustion.

The plant is electrically operated, the use of steam being eliminated entirely. A 70-horsepower Bessemer oil engine drives the generator that supplies the electric current for the pumps and for the lighting system. The engine requires only three barrels of fuel oil every 24 hours. The heating system also has proven economical, being much more rapid than that of an ordinary shell still.

Flue type still is employed, with forced draft for heating. This kind of still has never been used before for refining crude oil, it is said. A Dutch oven at the front of the still supplies heat for the refining process. This oven is equipped with two fuel oil burners. The flues, 24 inches in diameter and 30 feet long (the length of the still) extend longitudinally through it. The flame and heat from the burners is forced through the flues and the heat passages at the sides and under the bottom of the still, by air draft.

Distilling off 60 per cent of the crude, the plant can handle 1000 barrels of oil in 24 hours, in six-hour runs of 250 barrels to the run.

Distilling off 30 per cent, it can handle 2000 barrels a day and distilling off 15 per cent it can handle 3500 barrels.

They are the two main units of the refinery, the power equipment and the distilling equipment, that are built and carried on steel railway cars. The power car is 70 feet long, 13 feet and 8½ inches high, and 9 feet 1¼ inches wide. It carries the 70-horsepower engine and generator, the 70-inch suction fan, air compressor to supply air for starting the 70-horsepower engine, and a two-horsepower gas engine to operate this air compressor. It also carries an air tank, a radiator for cooling water for the engine, a low-pressure blower for atomizing fuel oil to fire the still, the electric switchboard and other equipment.

The still car is 65 feet long and corresponds closely with the power car in its other dimensions. The still car carries the still with Dutch oven, heat exchanger and condenser. The rectifying tower which is mounted on the still is detachable. The smoke stack is also movable, being placed when the refinery is in operation on concrete foundation at the side of the still car.

Both of these railway cars are constructed of heavy steel and conform to standard railway specifications. The steel sides of the power car are divided into sections which are hinged at the top so that when the car is stationary they may be pulled up like screens that open at the bottom, thus forming a protective awning extending out from the roof of the car. Both cars are equipped with regulation brake beams, air hose connections and 24-inch walkways on top. The capacity, or traveling load of the power car, is 80,000 pounds. The still car has a capacity, or traveling load, of 100,000 pounds. When anchored and braced at the refinery point for operation, the still car has a working load capacity of 350,000 pounds.

These specially built cars do not rest on their wheels while the plant is in operation. Instead they are jacked up and lowered on concrete foundation beams, placed cross wise of the tracks, and tied with steel rods to the tracks. By this method they are steadied and the heavy weight during the operation of the plant is taken from the wheels.

The heating system is a feature of engineering interest because of the rapidity with which the still may be heated and cooled. On being forced by air draft through the two flues that extend through the center of the still, (thus passing through the fluid in the still) the flame and heated air are turned at the back of the still into heat retaining compartments or passage ways on either side of the still and are returned to the front of the still. On reaching the front, the heated air is directed into a passage way immediately under the still. It emerges from this passage way into the smoke stack.

Driven by forced draft from the big fan, the heat thus comes in contact with more than half the outer surface of the still. In addition to firing the still in record time, this also means economy in fuel. It is claimed by the designers that it has a heating capacity of five times that found in the ordinary shell still. In order to stand the heat, the oven has an insulation nine inches thick, and the flues are insulated three inches thick, for a distance of 11 feet. The heat retaining compartments on the sides of the still and under it are formed by the fire brick walls and fin walls.

The 70 horsepower Bessemer oil engine is a Type IV, single cylinder, valve slide engine. The generator is a 14.4 K W. generator, alternating current, 220 volts, three phase, 60 cycle. Seven pumps are employed, these being centrifugel pump to move the crude into the still, pump to move residue oil, three positive displacement pumps for transfer service for the distillates, triplex plunger pump to move fuel to the burners and a small centrifugal pump to move water for cooling the engine. All pumps save the last one, which is operated from the main shaft of the engine, are equipped with individual electric motors.

The BEACON LINE
Meets All Requirements

BEACON PUMPS
are simple in construction.

Fast in service.

Accurate in delivery.

Handsome in appearance.

They are the last word in quality.

These Beacon prices will interest you.

Type "L"
Hand operated five gallon with globe and wired for lights . . . . . *Net. $150.00*

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Hand operated five gallon visible without light globe and wiring. . . *Net. $125.00*

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"The Aristocrat" Hand and Electric combination five gallon. . . *Net. $325.00*

Pumps finished in any trade color without extra charge.

Write for Bulletin describing the complete line of BEACONS

BEACON PRODUCTS COMPANY
Successors to
Beacon Visible Pump Company
720 West Breckinridge Street
Louisville, Ky.

Here And There

W. E. Lockhart of the executive staff of the Producers & Refiners Corp., Denver, stock-controlled by the Prairie Oil & Gas Co., is a strong exponent of the morale of the men who make up the field forces of the petroleum industry.

Mr. Lockhart likes to tell the story of a girl who visited the scene of operations in the Ranger days at a time when he was in charge of certain development out of Fort Worth.

He was on a tank near Ranger one day, says Mr. Lockhart, when he noticed a girl selling insurance to the field workers. Turning to his farm boss, he told him (as a joke, but stated seriously) to have the girl put off the lease.

A few minutes later, when he had seen the farm boss take off in the opposite direction, Mr. Lockhart engaged the girl in conversation, telling her that she had just caused him to "fire" one of the best men he had.

When he had answered her interrogatory as to why, she realized quickly that the incident was a joke. Then Mr. Lockhart asked how she had been treated with the response forthcoming that she had never encountered greater respect in her life than among the men in the field.

"I knew it," Mr. Lockhart says he told her, "but I just wanted to hear you say it."

* * *

Paul Shoup, president of the Associated and Pacific oil companies and vice-president of the Southern Pacific System, recently called at the office of Captain Robert Dollar, head of immense shipping interests centering in San Francisco.

Shoup refused to give his name to the office boy on guard at the Dollar offices. The office boy finally told the Captain that an individual was outside who looked like he wanted a job and would not identify himself.

Dollar came to the doorway, said "Hello Paul," and they proceeded to leave for lunch together.

The non-impressable office boy, so the story goes, hasn't recovered yet from his surprise.

* * *

The remodeling of the filling station of the Peerless Oil & Refining Co. is about finished. The pillars and upper walls of the station are made of bronze green bricks. Six bracket lights illuminate the grounds and eight center lights the interior.

* * *

Miami Oil Co., Miami, Fla., has opened a branch warehouse at West Palm Beach where it handles a complete line of paraffin and asphalt motor oils, according to A. D. F. Bloodworth, president.

Cy H. Pruner, who has been for the past three years in charge of Veedol sales for the Tide Water Oil Sales Corp. in the south Pacific district, has been made district manager of the north Pacific district, with headquarters at Portland. This district includes Oregon and Washington.

C. J. Kay, formerly assistant to Mr. Pruner at Los Angeles, succeeds the latter as south Pacific district manager with headquarters at Los Angeles.

The Tide Water has recently moved into its own warehouse and offices at Portland and has put into service its own trucks for Veedol deliveries.

* * *

Robinson Oil Co., Julesburg, Colo., in addition to its Julesburg and Big Springs service stations, has taken over the Tourist Filling Station of Chappell Station, at Haxtun and one at Ogallala, Colo. The warehouse which has been under construction in Julesburg, was expected to be ready for a formal opening on May 15, according to Harry I. Robison, president.

* * *

O. P. Jaeger, president of Jaeger Petroleum Co., has left for a month's trip to the oil fields of Montana. E. J. Wiedenheft, secretary, is attending the business in Chicago in Mr. Jaeger's absence.

* * *

D. E. Dawson has succeeded E. A. Ray as manager of the Standard Oil Co. of Indiana filling station here. Mr. Ray has been manager of the station for seven years.

This Is Your Page

Personal mention of men in the industry which appears on this page very largely comes from readers of the paper, who write in to tell us when something interesting happens to them or their friends.

The most interesting thing in the world is the people in it. It's a very human trait to desire to know what other people in your industry are doing. Will you help to make this record from week to week as complete a chronicle of the happenings, big or little, of the men that carry on this great oil industry by telling us, in your own words, what happens to you or your friends of interest to chronicle here?—Editor

Home Oil Co., Inc., has recently been organized at Clover, S. C., to market petroleum products. The company is capitalized at $10,000. Officers are: I. J. Campbell, president; J. E. Marshall, vice president; V. Q. Hambright, secretary and treasurer.

The company has been in operation since May 1, and has 15,000 gallons each of gasoline and kerosene storage, also lubricating oil.

* * *

The P. W. S. Oil Co. has purchased the filling station formerly operated by Louis Moe, and will redecorate and equip it completely. This will make the second station for the company. Partners in the firm are: Harry Wigginton, Clarence Parker and Louis Smith. Fred Dizard, formerly salesman for the company, will assume management of the newly-acquired station.

* * *

William V. Hughes, president of Hughes Oil Co., Glendive, Mont., is visiting the company's stations in North Dakota and Montana. Mr. Hughes is very optimistic on business prospects in this territory and is planning to add several new units to his chain of stations, according to H. A. Sample, manager. Mr. Hughes lives at Evanston, Ill.

* * *

Jesse M. Hawley, who has been for the past 10 years associated with the Vacuum Oil Co. at its Milwaukee and Chicago offices, has been put in charge of the company's motor oil distribution in northwestern Wisconsin. Mr. Hawley's offices will be located here.

* * *

Recently Paul E. Hadlick, secretary of the Minnesota Oil Men's Association, delivered a 15-minute talk on the "Gasoline Situation" over the radio at the Twin City Radio Central. This was arranged through the courtesy of the Renzo Gas Co.

* * *

Atlantic Refining Co.'s filling station, at Hartford, Conn., was opened to motorists recently. Four quarts of motor oil were given to each purchaser of five gallons of gasoline on the opening day. George Reynolds is in charge of the station.

* * *

S. E. Smith, salesmanager for the W. H. Barber Co., Minneapolis, Minn., is making an extended tour of the northwest on business. He will go to the coast and not return to Minneapolis until after June 1.

* * *

Central Texas Petroleum Co of Fort Worth, Tex., elected the following officers at its recent meeting of the board of directors: F. D. Bostaph, president; A. C. Taylor, vice president; and T. P. Fenelon, Jr, secretary.

Oil Trademarks For Copyright

THE following are trade-mark applications pertinent to the oil industry pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C., trade-mark specialists.

As an additional service feature to its readers, this paper gladly offers to them an advance search, free of charge, of any mark they may contemplate adopting or registering. You may communicate with the Editor of NATIONAL PETROLEUM NEWS or send your inquiry direct to the National Trade Mark Company, stating that you are a reader of this journal.

Ser. No. 181,241. (Class 6, Chemicals, Medicines, and Pharmaceutical Preparations.) George J. Burns, doing business as Ener-Gee Refiners & Mfrs. Company, Cleveland, Ohio. Filed May 28, 1923.

Particular description of goods.—Chemical Carbon Preventive or Remover, Gas Intensifier, and Lubricant for Increasing the Efficiency of Combustion of Hydrocarbon Liquid Fuels.

Claims use since Jan. 20, 1923.

GRAFOLEUM

Ser. No. 183,147. (Class 15. Oils and Greases.) C. E. Harrell, doing business as Grafoleum Products Co., Kansas City, Mo. Filed July 13, 1923.

Particular description of goods.—Lubricating Oils and Greases.

Claims use since Apr. 15, 1923.

ROTOR

Ser. No. 191,674. (Class 15. Oils and Greases.) Columbia Oil Company, Rosslyn, Va. Filed Feb. 2, 1924.

Particular description of goods.—Fuel for Use in Internal-Combustion Engines.

Claims use since Jan. 24, 1924.

Frontier

Ser. No. 193,281. (Class 15. Oils and Greases.) Frontier Manufacturing Company, North Tonawanda, N. Y. Filed Mar. 5, 1924.

Particular description of goods.—Lubricating and Cutting Oils and Greases.

Claims use since May, 1914.

SNAPPY

Ser. No. 193,178. (Class 15. Oils and Greases.) Edward H. Johansen, doing business as United Tires Stores Co., Washington, D. C. Filed Mar. 3, 1924.

Particular description of goods.—Gasoline and Lubricating Oil and Grease.

Claims use since about Jan. 15, 1924.

ACE QUALITY

Ser. No. 192,261. (Class 15. Oils and Greases.) Midwest Oil Company, Minneapolis, Minn. Filed Feb. 14, 1924.

No exclusive use of the word "Quality" is claimed other than in the manner used in this mark.

Particular description of goods.—Lubricating Oils, Lubricating Greases, Kerosene, Gasoline, Naptha, Fuel Oils, Gas Oils, and Road Oils.

Claims use since Mar. 1, 1919.

OAK

Ser. No. 192,966. (Class 15. Oils and Greases.) Frontier Manufacturing Company, North Tonawanda, N. Y. Filed Feb. 28, 1924.

Particular description of goods. Lubricating and Cutting Oils and Greases.

Claims use since Aug. 1, 1918.

VEEDOL FORNOL

Ser. 192,509. (Class 15. Oils and Greases,) Tide Water Oil Company, Bayonne, N. J., and New York, N. Y. Filed Feb. 18, 1924.

Particular description of goods. Lubricating Oils.

Claims use since Feb. 7, 1924.

VEEDOL FORHOL

Ser. No. 192,508. (Class 15. Oils and Greases.) Tide Water Oil Company, Bayonne, N. J., and New York, N. Y. Filed Feb. 18, 1924.

Particular description of goods. Lubricating Oils.

Claims use since Feb. 7, 1924.

FORNOL

Ser. No. 192,507. (Class 15. Oils and Greases.) Tide Water Oil Company, Bayonne, N. J., and New York, N. Y. Filed Feb. 18, 1924.

Particular description of goods. Lubricating Oils.

Claims use since Feb. 7, 1924.

FORHOL

Ser. No. 192,506. (Class 15. Oils and Greases.) Tide Water Oil Company, Bayonne, N. J., and New York, N. Y. Filed Feb. 18, 1924.

Particular description of goods. Lubricating Oils.

Claims use since Feb. 7, 1924.

SINTEX

Ser. No. 193,137. (Class 15. Oils and Greases.) Sinclair Refining Company, Chicago, Ill. Filed Mar. 1, 1924.

Particular description of goods.—Refined, Semi-refined, and Unrefined Oils and Greases Made from Petroleum, Both with and without Admixtures of Animal, Vegetable, or Mineral Oils, for Illuminating, Burning, Power, Fuel, and Lubricating Purposes.

Claims use since Jan. 23, 1924.

Ser. No. 192,165. (Class 15. Oils and Greases.) Vacuum Oil Company, New York, N. Y. Filed Feb. 11, 1924.

Particular description of goods.—Naptha and Refined Oil.

Claims use since Sept. 30, 1923.

SILICA GEL LUBE

Ser. No. 190,900. (Class 15. Oils and Greases.) The Silica Gel Corporation, Baltimore, Md. Filed Jan. 16, 1924.

The lining or crosshatching appearing on the drawing of the trade-mark merely indicates that the mark as actually used has its letters lined or crosshatched, as shown.

Particular description of goods. Lubricating Oils.

Claims use since Jan. 3, 1924.

DICTAPHONOIL

Ser. No. 186,699. (Class 15. Oils and Greases.) Dictaphone Corporation, Bridgeport, Conn. Filed Oct. 8, 1923.

The trade-mark consists of the word "Dictaphonoil." For the purposes of registration and without waiving any common-law right, the exclusive right to use the word "Oil" is disclaimed.

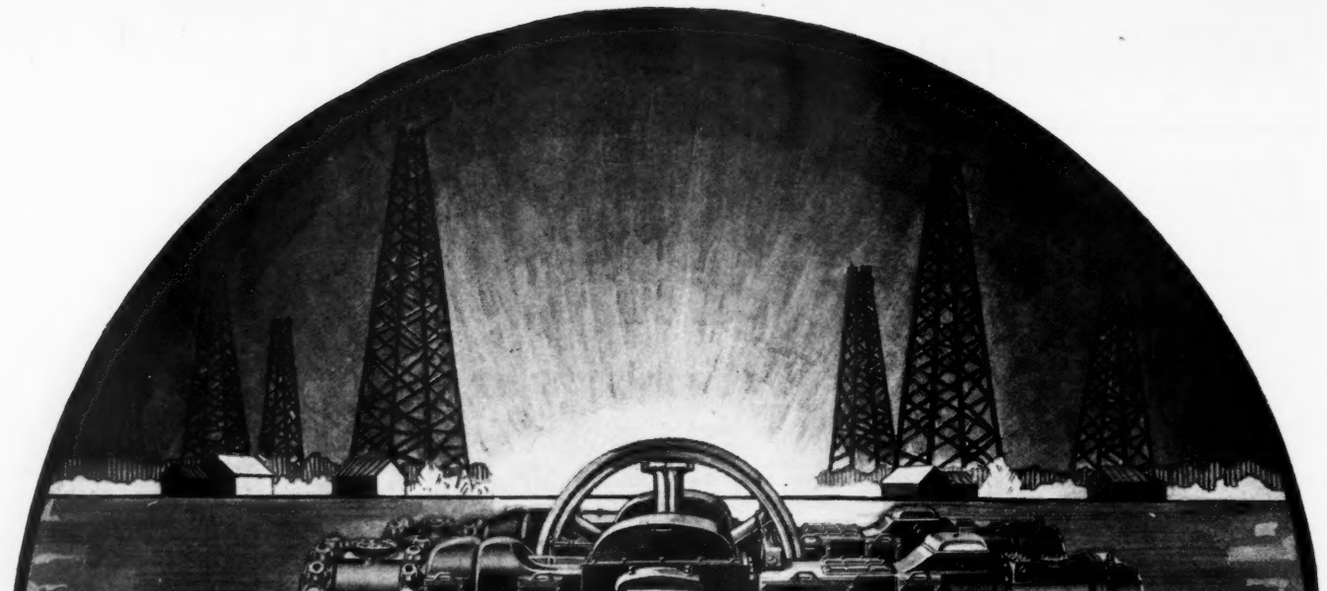
Particular description of goods. Lubricating Oils.

Claims use since about Sept. 1, 1923.

Burke, Pioneer Standard Oil Man Dies

NEW YORK, May 19.—Charles Clinton Burke, a director of the Standard Oil Co. of New Jersey, died on May 12 at the age of 83 years, at his home at Plainfield, N. J. He was formerly president of the Eagle Oil Co., a subsidiary of the Standard of New Jersey, a director for nearly 25 years of the Chesebrough Mfg. Co., a director, vice president and then president of the New York Produce Exchange, and was one of the founders of the Fulton Trust Co., of New York, with which he was associated as trustee at the time of his death.

Mr. Burke was one of the pioneer oil men, having entered the industry at Titusville, Pa., in the early '60s. He came to New York in 1870 and built a refinery at Newtown Creek. In 1883 he became president of the Eagle Oil Co., remaining with that corporation as an executive for 20 years.



They All Come Back for More

The story we tell of the continuous trouble-free operation in the field of Bessemer Oil Field Equipment is forcefully and conclusively proven by the actions of Bessemer users themselves.

As Oil Companies have grown from organizations using one or two Bessemer units to huge concerns operating scores and even hundreds of units—Bessemer Equipment has almost invariably been repeatedly specified.

As a result, Bessemer repeat orders have been built up to the "99% and better" point of Bessemer operating records.

THE BESSEMER GAS ENGINE COMPANY
70 York Street — Grove City, Pa.

BESSEMER

BESSEMER OIL FIELD ENGINES – COMPRESSORS — VACUUM PUMPS – ROLLER PUMPING POWERS

Jobber Increases Lube Oil Business Selling To Consumer Direct

By Ward K. Halbert

STAFF REPRESENTATIVE

ST. PAUL, May 15. HAVING adopted a policy four years ago of selling lubricating oils to the consumer direct, and no other way, the Willhelm Oil Co.'s gallonage in lubes has increased 50 per cent each year since. In 1924 the company hopes to distribute 125 tank car loads.

There is no secret to the system according to A. W. Guttersen, head of the company; any Independent jobber marketing his own brand of lubricants can do the same thing in his own community.

The smaller an oil man's field of operation, the easier it is for him to reap the profits that accrue from selling direct to the user, Mr. Guttersen says, for it is all a matter of personal contact with the sales force, local reputation of the company and ability to give service to customers. The bigger an organization gets the more difficult this becomes. And the smaller and more concentrated the trade territory, the easier it is.

It is impossible to give service to customers in a distant state, who buy lubricating oil in lots of 15 to 50 gallons. It is difficult to invade another oil man's territory and build up a reputation for honesty superior to his, among his own neighbors and freinds. And it is not easy to instill one's ideas of merchandising in more salesmen than you can know personally. So marketing direct is patently a small company's game, but a profitable one.

Guarantee Performance

Lubrication is an intricate science. Most consumers of oil are "sold" on that point. The average consumer of oil is practical but not technical and welcomes any reasonable and honest information on the subject. And that is where the Willhelm Oil Co., salesmen gains admission. He offers oil to the motorist with an absolute guarantee of satisfaction. He is not allowed to discuss the relative merits of Pennsylvania and Texas oils. He is not allowed to compare asphaltic and parafin bases. And he is especially cautioned to keep away from bickerings about flash and fire tests.

Willhelm Oil Co. has 52 salesmen who work the year around, and the force is more than twice that big in the summer. They are not "high pressure" salesmen and they are not technical men. They are instructed above all things to keep away from "hokum" and talk business. When questioned on points technical one of them is likely to say:

"Now I am not a petroleum chemist and neither are you. All oil is good oil for some purpose. When a man is dissatisfied with the oil he uses in his engine it does not mean that the oil is bad, but it means he has the wrong oil. He got it because he did not know what was best for his motor, and the man who sold it to him did not know either. We have eight grades of lubricating oils, all the same quality and all the same price. We supply you the one that suits your motor and guarantee satisfaction. Here is the guarantee—." Each salesman's business card carries the following statement on the back:

> We guarantee that every product which we offer it good value at the price and will give satisfactory service if used as recommended. Any goods purchased from us may be returned for full credit if not entirely satisfactory. We further guarantee that the Willoco oil delivered to each purchaser will exactly fit the engine for which it is sold, in its present state of wear. If any purchaser notifies us within 30 days that the oil delivered to him appears to be too light or too heavy, we agree to replace it free, freight prepaid with the next lighter or the next heavier grade of the same quality.

If the customer places an order, it is not for the specific weight of oil which he thinks his motor requires, nor is it for the oil the salesman thinks he ought to buy. It is for the oil the company's engineers find his motor to need, after they know everything they want to know about it. Each order placed is accompanied by a data sheet, telling all about the motor in question. The name of the motor, the age of it, the number of miles it has run, the kind of business it is doing, when it was last supplied with new piston rings, any any other important information available.

Prescribe For Motors

Each shipment of oil is sent out on prescription, so to speak. The salesmen do not prescribe however. They diagnose each case, but the engineer at the home office prescribes. Of course the salesmen can give the customer some idea about what sort of oil he will get. Taking an ordinary lubrication chart the salesman can say, "A car of this make and this age is supposed to use our No. 6 oil, and I am ordering that kind, but if the management thinks you should have something else they will send it, under the guarantee. I am sending a full description of your motor."

In the event a customer insists on having a certain grade of oil thinking he knows the requirements of his machine, the company will not ship to him unless he is nearly correct in his judgment. The Willhelm company has eight weights of oil and if the insistent customer's specification is more than one grade removed from the engineer's judgment of his needs, he does not get the oil. The guarantee is too broad to allow the engineer to prescribe the wrong oil even at the customer's urgent request, and if the customer's arbitrary specification is close enough to the company's to permit the transaction to be closed, a letter is written him, advising the other grade of oil and offering free exchange upon request if the goods shipped do not prove satisfactory.

At first thought, it might seem that Mr. Guttersen is building up an enormous overhead expense with a large and complete laboratory, two experienced engineers and upwards of 200 salesmen in the summer time, but such is not the case. Mr. Guttersen is one of the lubrication engineers himself—the chief one. As for the salesmen, they are on a commission basis and several of them exceeded $5,000 in net earning in 1923. One of the men who exceded $5,000 was assigned to a territory which is one of the dryest and hardest-hit farming districts in the west. It is the section served by the branch of the Northern Pacific Railway between Mandan and Killdeer in central western North Dakota, and the main line east from Mandan to Jamestown.

Salesmen's Oil School

Each winter when the country is locked in with cold and snow, and there is no work to be done out of town and comparatively little business available in the larger cities, the Willhelm Oil Co., calls in its sales force and instructs its members in oil. There is not so much in the course of training that the salesmen do not already know, in a way. The school is to teach the men sincerity in salesmanship, and terminology. In other words, they are instructed to tell an inquiring customer the truth about lubricating oil, in terms the customer can understand, even though he knows it to be something the prospect does not really want to believe.

Terminology differs with nearly all manufacturers of lubricating oils. One company's medium oil is often heavier than some other company's heavy oil. The result is that a great many motorists have become confused. Especially is that true of farmers who seldom buy from an oil man but almost entirely from hardware people or operators of garages that were blacksmith shops in 1917.

Experience has told these farmers that something is "wrong with the system" and they are ready to believe a salesman when he says "It takes eight weights of

oil to fit every type of motor, but no hardware man will stock our full line, and if he did he would not know how to sell it."

At the school the salesmen are taught internal combustion engines. They are shown precisely what takes place inside of a Ford when it is running, and just what the lubricant is supposed to do. They are shown all the possible things that can happen to an engine to prevent its lubricating system from working. Besides, they are shown the importance of frequent changes of motor oil, and instructed in ways of teaching motorists that crank case dilution is more likely the fault of the motor or the fuel than of the oil itself. The whole theory is that **all oil is good but most people need help in picking the right one.**

The reasonableness of this argument appeals, as is proven by the results of the work of some of the best salesmen. Another illustration of the fact that the Willhelm Oil Co. placed 969 orders for motor oil with users at a five-day automobile show in Minneapolis last year. In order to keep the prospects still long enough to gain an audience with them, the company gave away a small can of oil in return for a name and address, at its booth in the exhibit hall. The people stood in line to get the little oil can, and as they did so the salesmen talked to them. The result was nearly 1000 orders.

Only One Price

Probably the widest departure from the regular order of things in this merchandizing plan is selling all grades of oil at the same price. The graduated scale of prices, Mr. Gutersen thinks, is possibly the greatest influence to make users select the wrong oil. Especially is that true of farmers. As between two oils, whose merits are both unknown, it is only natural for a buyer to select the cheaper oil, and sometimes the more expensive grade would be better for his car.

Inversely, some users waste a few additional cents a gallon for expensive oil thinking they are getting "quality," when the cheaper oil would serve them better. He contends that the difference in profit to the dealer is more than made up in the assurance of giving satisfaction.

One of the greatest savings in dealing direct to the consumer is in getting away from the abnominable practice of giving gifts to garage men. The garage man who stands always ready to change brands of oil, if by so doing he can get some oil man to give him a pump or lend him a tank, is entirely out of the picture. The Willhelm Oil Co. spends no money for advertising space on the front of garages. It paints no barns and papers no parlors and rents no city pavement in order to retain the account of some fly-by-night motor mechanic.

As a matter of fact, the company does carry two lines of oil, entirely different in price and appearance. The two lines are both divided up into the same eight grades. Both lines carry the company's guarantee, and both carry the company's trade mark.

Customers who insist upon the best oil that can be bought for their motors, are given the privilege of using the superior product which sells at a premium, but the company retains the right to name the weight of oil for the particular motor. In explaining the relative merits of the two grades a Willhelm salesman will say:

"You can get a good $20 overcoat or you can get a good $40 overcoat. One will be finer than the other, but both will be good. You can get a fit in either kind, and the important thing to you is getting good material and getting a good fit. If you have an extra fine car and want a fancy oil, we have it."

Manual of Sales

Every salesman on the force is encouraged to take account of his accomplishments in salesmanship for the benefit of the others. Not long ago, with a talk on "depreciation," one of the salesmen placed his goods with a financial man. Soon afterward the loose-leaf manual in the brief case of every salesman on the road contained a sheet telling briefly "How to Sell a Banker." At least once a week all during the season the mail takes a sheet of new ideas to the salesmen, to be incorporated in that loose-leaf Manual of Sales.

Of course, the guarantee which the salesmen make to their prospects costs the company some money. Taking care of dissatisfied customers, paying return freight on early shipments and more freight on the substitute orders, cost the company upwards of $2500 the first year the sales program started. However, it has not increased in proportion to the business. The company still has a great deal of oil to bring back from the country and more oil to send out, but that cost is absorbed in the gain of having no money on the books.

All shipments of oil to farmers are made C. O. D., if they go by rail. In the Twin Cities and over a radius of 20 or 30 miles, deliveries of oil to consumers are made by stake truck. No packages are smaller than five gallons and few orders accepted for less than 15 gallons. In other states, however, deliveries are made by rail. Even truck deliveries are cash, according to rule, and the rule is adhered to as strictly as the cash rule is ordinarily observed by rural tank wagon drivers.

Strangely enough, it is a known fact that the farmers of the northwest have cash.

Farmer's Predicament

An economist recently declared in Minneapolis that the northwestern farmer has more money in his pocket today than he ever had in his life, not excepting the boom years. This does not mean that the northwestern farmer is economically sound, for he is not. But all his money is in his pocket. The frequency of bank failures in this country is enough alone to make people keep their money where they can lay their hand to it. But with the farmer there are other reasons still.

A great many farmers have notes in bank, amounting to more than the cash in their sock, but they are not applying cash on note at bank. Not that the farmer is dishonest. With farmers here as elsewhere, their obligations are sacred and they sometimes consider their obligations first and their personal comfort second. But they will not consider their safety and the safety of their families second to anything. There was a time when any single farmer with a $200 note in bank could apply his last penny on it in safety. He could make a payment on his note to the extent of his last $112 and if he needed $25 next week he could go to the bank and get it. But not so today.

The farmer's credit is strained. Many of them could not borrow money (with the banks in the shape they are in) even if they paid off their notes in full. The farmers know this and they are keeping their money under a loose floorboard in the old Seth Thomas clock.

Indiana Oil Refining Goes Into Receivership

COLUMBUS, IND., May 19.—Placing of the Indiana Oil Refining Co. into the hands of receivers for the second time in its short history took place the past week after O. L. Bartlett, organizer and first president of the company who was later ousted, filed suit against the company for $18,700 which he claims is due him on contract by which he became fiscal agent of the company at the same time that he was president.

H. H. Townsend, representative of the Graver Corp., of Chicago, chief creditor of the refining company and holder of a mortgage against the company's plant, who was made temporary manager of the Indiana last month when the Graver Corp. took over the company, was named receiver for the concern.

Following the filing of Mr. Bartlett's claim, the Graver Corp. brought suit against the refining company for foreclosure of its mortgage, and because there were several suits pending.

The Graver company intends to reorganize the refining company, however, and to put it on a sound operating basis. It has already placed orders for more than 50 pumps and tanks, additional trucks and expects to install storage tanks in outlying fields which are now located on the Indiana's properties. Mr. Townsend will soon begin the refinancing and reorganization of the plant.

LOUISVILLE, KY., May 19.—Otto F. Fausel, of the Louisville Lead & Color Co., was elected secretary and treasurer of the Louisville Superintendents Club at its recent meeting for election of officers for 1924.

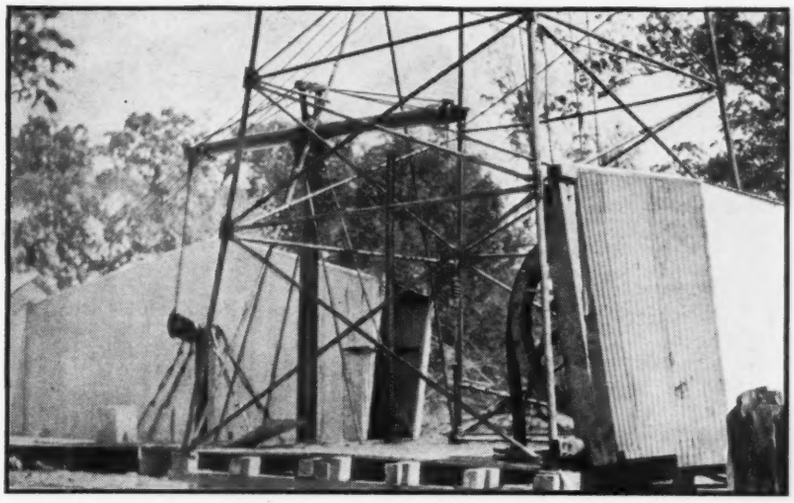
Easy Way To Replace Wrecked Derrick

Staff Special

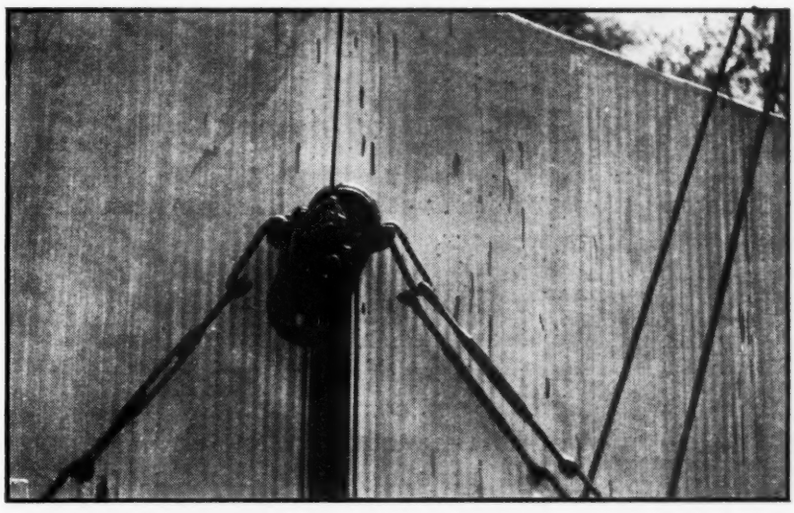
TULSA, May 15

CONCRETE and old pipe are about all that are required to make a first class pumping rig and at less expense than a wooden derrick, the Shaffer Oil & Refining Co. has found. The rig, which is shown in accompanying photographs, is located in the NWc NE¼ SE¼ of 6-19-12, Tulsa county at the No. 2 Jenny Bruner. This is in the Bruner pool between Tulsa and Sand Springs.

Primarily, construction of such a rig is more feasible for the replacement of a rig that has blown down, or worn out than for new work. Many such losses occur in Oklahoma. It is also ideal for the replacement of old rigs that have, through age, become unserviceable. No tests have been made to determine whether it is strong enough for drilling.



This rig is made of casing and tubing. Concrete post near jack post is for sand reel.



Showing manner of hitching wire on line pitman to crank on bandwheel.

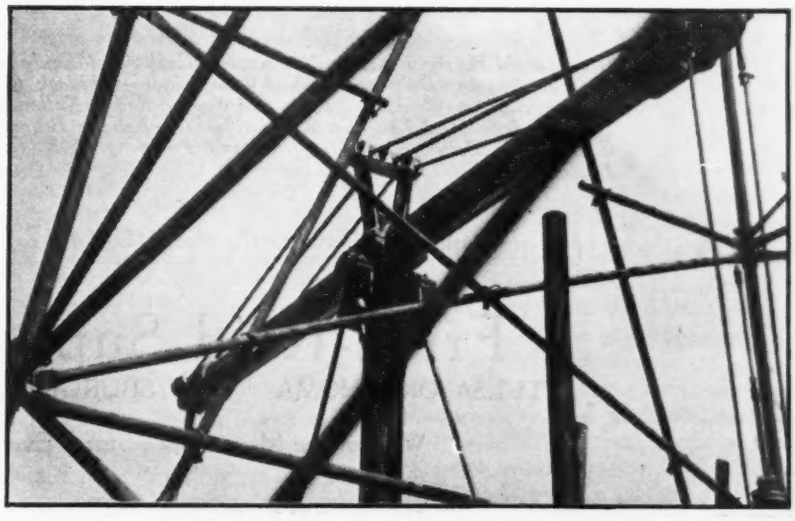
One of the novel features of the rig is the wire cable pitman. This is attached to crank on the band wheel by heavy hook, as shown, and consists of a length of ordinary ¾-inch wire line.

Credit for working out the arrangement is given to L. F. Fraser, cleaning out superintendent for the Shaffer. Mr. Fraser has patented certain parts of the equipment, including the bearing attachments for the tops of the sampson and jack posts. These castings are being made to specifications in Sand Springs.

The rig is easy of construction and requires no expert rig builders. Common labor, with a pusher who knows where the parts are to go, can put it up all the way from pouring the concrete base to building rig. It is too early to make positive statements as to the money saved, but it is believed that the reduction in cost over wooden rig will amount to $100 to $200.

The basis of the arrangement is a concrete slab into which are bolted the jack post, sampson post and headache post, all of which are made of pipe. A square concrete post is set for the sand reel. In the rig shown here, no sand reel has been placed as there has as yet been no need for one.

The rig shown in the photographs is 56 feet high. The legs are 3-inch pipe with 2-inch girths. The first girth is braced with 2-inch pipe and braces above that are made of discarded rods. The jack post and sampson post are 10-inch casing filled with concrete. The walking beam is hollow 10-inch. The beam is braced at the top as shown in the photograph, with three rods extending from center and forming a truss, through use of special castings at each end and in the center.



Showing the kind of truss used in bracing the walking beam.

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Some Methods Of Prolonging Natural Flow Of Oil Wells

By John M. Lovejoy
General Manager Amerada Petroleum Corp., Tulsa
Delivered Before Meeting Mid-Continent Section A. I. M. M. E., Tulsa, May 5

METHODS and results obtained in keeping wells flowing as long as possible after their completion were brought out in the paper published herewith, which was read by John M. Lovejoy, general manager of the Amerada Petroleum Corp., Tulsa, before the Mid-Continent Section of the American Institute of Mining and Metallurgical Engineers May 5.

Benefits to be derived from a close study of each individual well and installing flowing devices before volume and rock pressure have been dissipated, were pointed out. Mr. Lovejoy showed instances of the successful use of the "bean" or flow plug in Oklahoma, which device is frequently heard of in California practice.

Benefits derived from conservation of gas are strikingly brought out by the statement that after three years, the Signal Hill field still yields more than 200 million cubic feet of gas a day and the pressure has been so conserved that more than half this gas is delivered to absorption gasoline plants at from 35 to 50 pounds pressure, doing away with the necessity of installing compressors.—Editor.

MUCH work is being done by producers in all sections of the country in trying to find the most efficient way of flowing wells and the method which will make wells flow for the longest period. Most of us know what is going on in the Mid-Continent field but we are not so familiar with operations in other localities.

In California, more progress has been made than in any other place. Here, more than elsewhere, the old adage, "Necessity is the mother of invention" applies. With the extreme depth of the producing horizon and the high pressures found, it was imperative that changes and improvements of methods and equipment be worked out in order that the wells might be kept flowing as long as possible.

This paper is a compilation of notes and letters on the subject of flowing wells. Paul Paine has contributed a letter on California, E. L. Estabrook, on Salt Creek, C. C. Brown supplying the records and information on the Marland's Osage well. To each of these men the author wishes to acknowledge his thanks and appreciation.

No attempt will be made to describe the equipment used for the various methods. The chief object of this paper is to put before the producer what is being done in fields other than those with which he is intimately acquainted.

Broad Conclusions Not Easy

In discussing this broad subject, we must at all times be fair and open-minded. Unfortunately, the subject does not boil down to a mathematical comparison of figures. Experimentation along most lines leads to definite conclusions so that a certain method or methods can definitely be established to be better than, or inferior to other methods. It is impossible to compare methods of flowing wells this way.

Ultimate conclusions must be drawn, mostly from a practical and common sense viewpoint, rather than from a comparison of technical data. The chief reason for this is that no two wells are exactly alike. Sand conditions differ in every well. Rock pressure in the sand varies in different fields and also in different wells in the same field. Saturation of the sand, hydrostatic pressure, volume of gas and location of the well on the structure are factors which vary in every well and which must be considered when comparing various methods of extracting the oil.

Should any one attempt to say that any certain method is better for all wells than any other method, he would immediately establish his own ignorance of the subject.

He might show figures to prove his theories, but such figures would very likely not even hold good for the wells on the adjoining leasehold. Each field and each well is its own problem. In most cases where very satisfactory tests have been made of a certain method of flowing, it is more than probable that this particular well was an exceptionally good well to start with and would have shown equally goods results with other methods, had they been tried.

We do believe, however, that in a general way certain control of flowing wells is very beneficial and will result in a greater yield for the well and lower operating costs.

Methods of Flowing

Methods of flowing wells may be classified as follows:

1. Open flow through casing.
2. Flowing through tubing.
3. Flowing against straight back pressure.
4. Stop-cocking.
5. Flowing through "bean" or flow plug.

Open Flow Through Casing

This is the usual method of flowing wells in the Mid-Continent field. The wells are drilled into the sand dry and allowed to make what they will; the bigger the better.

The casing control-head and oil saver keep the well under control and prevent any waste of oil. The well is usually left alone for a time and then periodically agitated until the flow has become so infrequent that the well must be tubed and pumped, or made to flow through the tubing with packer.

Flowing with Tubing and Packer

Except in the case of small wells, the use of tubing for flowing usually follows open flow through the casing. In this method, the oil and gas go into the bottom of the hole at the same rate and with the same energy that it had while the well was flowing open and, with tubing, instead of having the large casing to conduct it to the surface, we have a smaller conductor.

Consequently, the energies confined to this smaller conductor will cause the well to flow for a considerable period after the well has entirely stopped flowing through the casing. Many cases of small wells making 40 to 100 barrels will not flow through the casing when drilled in; but as soon as tubing and packer are run, such wells will make their production for months in this way. In most of the Mid-Continent fields, the tubing and packer method can be used, and is used, for from one month to four or five months after the period of open flow and prior to the pumping stage.

It is interesting to note in this connection that in the Tonkawa field, the tubing and packer method was not at all successful.

The wells came in for from 500 to 3000 or 4000 barrels with a large gas volume but low rock pressure. As soon as the wells stopped making their production by open flow, an attempt was made to flow them through tubing and packer but it was found that there was not enough pressure left in the sand to cause the wells to flow through the tubing. The fluid level in these wells, as soon as they stopped flowing, was

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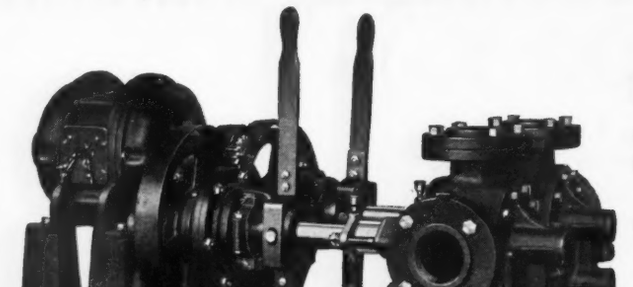

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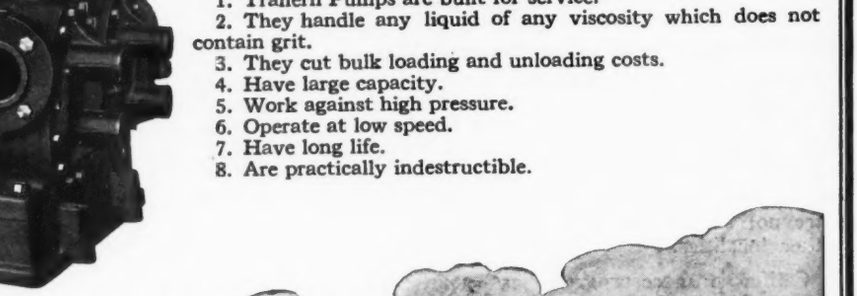
2. They handle any liquid of any viscosity which does not contain grit.
3. They cut bulk loading and unloading costs.
4. Have large capacity.
5. Work against high pressure.
6. Operate at low speed.
7. Have long life.
8. Are practically indestructible.



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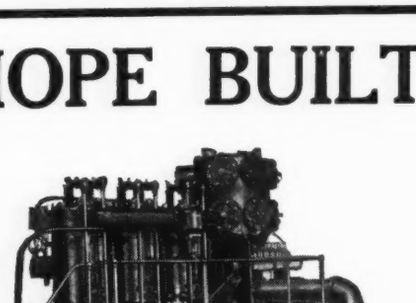

A combination of low installation and operating costs and good performance, is the reason for the second installation within a year of duplicate 160 H. P. REEVES gas engine compressor units by a large eastern gas company.

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about 200 feet from the bottom.

It appears that the large gas volume and the very high gravity of the crude allowed the wells to make high initial production until the gas volume was exhausted and then the wells had to be pumped, in order to get their production.

Various types of packers are used. Anything that will confine the oil and gas to the tubing instead of allowing it to come up in the casing, is satisfactory.

It might be well to mention that there are several flowing and pumping devices which will allow a well to flow freely through the tubing while the well is actually being pumped.

We have had very good success with the Rickets flow barrel, which accomplishes this by allowing the fluid to enter the tubing at any point desired above the working barrel. This is, of course, after the packer has been removed and is only for use in wells where there is enough pressure to maintain a fairly good fluid level in the well. With this attachment, while the well is pumping, it will make quite frequent flows.

Flowing Against Back Pressure

At the October, 1923, meeting of the A. I. M. M. E., the writer presented a paper on "Effect of Back Pressure on Wells in the Brock Field." The conclusions reached after an extended series of tests showed us that straight back pressure in this field did not lower the ratio of gas to the barrel of oil, as had been expected.

During the period when these tests were being made it was necessary, due to the general oil situation, to prorate runs.

In this field, we reduced the production approximately 1000 barrels per day to 350 barrels per day by building up the back pressure against which the wells were flowed. When the entire production could again be taken from the leases, the back pressure was removed with the result that the wells came back to a production slightly in excess of what they had been making prior to proration.

However, this only lasted for a short time, when all the wells of the field showed about a 10 per cent decline as compared with the period before proration. Since that time, the wells have been producing against a small back pressure varying from 5 to 25 pounds. Although we were unable to show by our back-pressure tests that we were actually instituting a saving of gas, we have found that the wells in this field are establishing very satisfactory flowing records.

A list of the flowing wells in the field, showing initial production, production on May 1, 1924, and the age of the well is shown on the next page.

From the above list of flowing wells the M. Varve No. 6 is worthy of special mention. This well was completed Feb. 3, 1923, with an initial production of 318 barrels, was allowed to flow through the casing until April 30, at which time tubing and packer were run. This well, at that time had declined to 150 barrels. As soon as tubing and packer were run in the well, the production increased so that the average production for May, 1923, was 170 barrels. During July and August, when proration became necessary, the production was cut to 120 barrels a day. It was producing against a back-pressure varying from 100 to 170 pounds.

During October, it was necessary to further prorate and, with a back pressure of 200 pounds, this well produced 65 barrels per day. The middle of November, the back pressure was released to 25 pounds and the production came back to 150 barrels average. Still producing against 25 pounds, the production worked up to 170 barrels average for January and February, 1924. The well averaged 165 barrels for March and 155 barrels for April, 1924.

This well has been flowing through tubing and packer now for exactly one year and is making as much oil now as when the tubing and packer were first run in the well. At all times, the well has been producing against a back pressure.

The oldest well of the series is No. 1, S. Baptiste, which has now been flowing through tubing and packer and most of the time against a small back pressure, for two years and 17 days. The sands in the Brock field are from 1300 to 2000 feet deep. The gas volume per barrel of oil is not high; about 1000 cubic feet per barrel. The rock pressure about a year ago was approximately 300 pounds. No water has shown up in any of the above listed wells.

We will not attempt to make any definite statement as to the value of the back pressure on these wells, but it is thought possible that a small back-pressure has greatly lengthened their flowing life.

Stop Cocking

E L. Estabrook, production engineer for the Mid-west Refining Co., writes:

"Our tests in the Salt Creek field indicate that flow nipples serve no particularly useful purpose in the work of reducing the amount of gas produced with each barrel of oil.

"There is no floating sand in the Salt Creek oil which would tend to wear out the fittings, and any reduction of flow can be accomplished just as easily and just as safely by partially closing the valves as by a change of flow nipples.

"We consider that the most effective method of gas conservation is to tube all flowing wells as soon as they pass the flush production stage. This is done in order that the gas which escapes from the top of the oil may not be free to pass out of the hole without doing any useful work. When the well is tubed to a point near the bottom of the sand, the gas must move downward through the oil, mingle with it and then carry it up the tubing to the surface. When the oil production of the well is too small to keep the bottom of the tubing covered, and thus maintain a steady flow, any waste of gas may be prevented by stop-cocking.

"Stop-cocking, or alternately closing in and opening up a well, permits sufficient oil to accumulate during the shut-in period to cover the bottom of the tubing and maintain a steady flow during a short period when it is open. The well should be opened for flow as often as possible in order to prevent the gas pressure from building up so high that the flow of oil into the well would be reduced. A stop-cocking valve, which opens every time the rock pressure reaches a certain point and closes again as soon as the pressure has been released and the flow of oil ceases, appears to be an admirable device to insure regularity and efficiency in stop-cocking."

A series of stop-cocking tests made in the Brock field showed an increase of production from 27½ barrels to 31 barrels and a decrease in the gas volume per barrel of oil from 1006 cubic feet to 834 cubic feet. The above tests were made in September, 1923. Since that time, until April, 1924, the well has produced consistently 30 barrels a day, with a stop-cocking valve, releasing first at 45 pounds and later at 30 pounds.

In February, the valve was disconnected in order to get comparative figures on straight flow through tubing. The well immediately went dead and had to be swabbed to get back to production. The stop-cocking valve was again put on and the well made its regular production for 60 days longer, until April 15, when the well finally stopped flowing.

It has now been put to pumping and shows a production of 20 barrels a day.

Considerable work has been done perfecting the automatic stop-cocking valve. Westcott & Greis, of Tulsa, are putting in a stock of these valves so that it will be possible to obtain them covering any range of release and closing pressure desired.

Flowing Through Bean or Flow-Plug

H. C. George, of the U. S. Bureau of Mines at Ardmore, writes:

"At the Kaufman well in sec. 31-2S-2W, which, up to March 27 had been flowing for months at the rate of about 20 barrels a day, I induced Mr. Kaufman to place a ¼-inch flow nipple in his lead line. The lead line, as well as the tubing, was two-inch. The tubing was packed in the 8¼-inch near the bottom. The 8¼-inch was cemented at 2590 feet and the total depth was 2650 feet. No liner was used. The first 24 hours after the flow nipple was introduced, the well made 135 barrels; the next 24, it made 100 barrels. During the last month it has averaged about 75 barrels a day as compared with 20 barrels a day during the previous month."

Paul Paine, of California, writes:

"In the first place, you are no doubt aware that in California the wells are not brought in 'barefoot' as in Oklahoma; the loose, cavey measures do not permit it but require in every instance that a finishing string of casing be inserted through the producing measure down to the bottom of the hole.

"The oil then gains access to the inside

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is the name of the book written by William H. Emmons, which goes into detail describing the more important fields such as the Appalachian, Lima-Indiana, Illinois, Mid-Continent, Gulf Coast of Texas and Louisiana, Rocky Mountain, Canadian, Mexican and foreign fields.

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National Petroleum News
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of the pipe through screen openings. Nearly all wells are drilled with a rotary, and after the required depth has been reached, the finishing string is let down and the well is in shape to be brought in.

Years ago, this procedure comprised bailing out the mud fluid and letting the flow start with a bang, sometimes blowing the bailer up through the crown block, frequently doing considerable damage and at best, with a flowing well, never being sure whether the well would flow 10 minutes or 10 years, because of the great sand trouble.

"This was in the days of perforated pipe, before the use of screen. The latter was a valuable contribution, but even with it there was much trouble from the sand gathering inside the pipe sufficiently to bridge the hole and stop the flow. Some bright mind conceived the flow-plug or 'bean'.

"This is simply a restricted opening in a steel billet placed in the flow line, the opening having a diameter of from ¼-inch to 1 inch. It introduces a friction factor that retards the rate of flow, reduces the velocity of the fluid in the casing and, therefore reduces the capacity of the fluid to carry the sand along with it.

"Recently, some experiments have been tried with the 'bean' at the bottom of a string of tubing, instead of in the flow line, but I am unable to find any really beneficial results of consequence. Placing the 'bean' in this position has the objection that the tubing must be pulled whenever it is desired to change the size of the opening or whenever the 'bean' has been cut out by sand.

"Bean" In Flow Line Helps

"The use of the 'bean' at the surface, in the flow line, has been of tremendous benefit. It has practically eliminated the sanding or bridging of flowing wells, reduced operating costs and has undoubtedly effected a much more beneficial utilization of the gas, so that more of the oil is produced during the flowing life of the well than would be the case without its use.

"The present California practice, even in those prolific areas where large wells are assured, is to insert a string of tubing prior to bringing in the wells. No packers are used, except various devices which serve to pack off the space between the tubing and the casing at the top of the hole.

"At the bottom of the tubing is attached a swedge nipple, just large enough to go down comfortably inside the casing; this serves to guide the fluid up into the tubing. When the tubing has been inserted and fastened at the top of the casing, the mud fluid is next displaced by pumping plain water down inside the tubing; the mud escaping through an opening and valve in the side of the casing at the surface.

"When the mud has been entirely eliminated and only water is in the well, a swab is run in the tubing and the water swabbed out until the well starts flowing. Sometimes, instead of the foregoing pro-

cedure, some of the mud is bailed from the hole with a big-hole bailer before the tubing is run in, and the remainder swabbed out through the tubing, but this is a rather dangerous performance with some of the high pressure wells which have a way of breaking in earlier than looked for.

Gas Traps Generally Used

"Gas traps are invariably used, for separating the gas and sending it along to the absorption plant. These traps are built for pressure service, because the gas pressures frequently hold up for months, so that the gas may be separated at from 35 to 50 pounds, thus dispensing with the need for compressors. You may be interested in knowing that at Signal Hill, where the first well was completed in June, 1921, the present gas production is in excess of 200 million cubic feet per day and less than half of it requires compression before going through the plants."

C. C. Brown, general manager of production for the Marland companies, has provided some most interesting data on this method of flowing. The Marland No. 1 Pettit, southeast corner of sec. 20-23-8, Osage county, was completed in October, 1923. Due to pipe line congestion, the well was not allowed to produce until Nov. 15, at which time the well was flowed through a 1-inch flow-plug. It was necessary, in November and December, to curtail the production to 2600 barrels a day which was done by shutting in the well completely part of the time.

After Jan. 1, the well was allowed to make its full production through the flow-plug. It made 2990 barrels on Jan. 1, 2961 barrels on Feb. 1, and 2970 barrels on March 1, with practically no daily variation. During March and April, the production began to show a slow but steady decline to a production of 2640 barrels, which was the actual gauge on the well on April 22.

Pressure readings were taken just before the oil passed through the orifice, and temperature readings on the low pressure side. During the life of the well the pressure has declined from 145 pounds to 116 pounds, and the temperature has increased from 104° F. to 109° F. Mr. Brown says the well has a very small gas volume. This well has produced up to April 22d, a total of 453,145 barrels of oil. It has made no water, B. S., or cut oil.

Conclusions

In concluding, it is advisable, perhaps, to repeat the note of warning in the introductory remarks; the warning to be careful about making too positive statements on the subject of flowing oil wells.

The good records of the wells at Brock, flowing against back-pressure, might be improved upon by the stop-cocking method, or by flowing the wells through a flow-plug. We cannot say. The encouraging results on stop-cocking might be improved upon by the use of the flow-plug. In the Marland pool in the Osage, it is interesting that the flow-plug has been tried on various other wells in the pool, but that they would not respond to this method. Homer T. Lamb, of the Red Bank Oil Co. advises that an offset to Marland No. 1 Pettit, has made its production by an open flow through 5 3/16-inch casing and is still flowing 400 to 500 barrels per day, but would not flow when a flow plug was tried.

It seems to me quite possible that the flow-plug has increased the yield of the Marland well very greatly as compared to what it would have made with an open flow. Also, as there is a very small gas pressure, hydrostatic head is probably one cause of the large production that this well has made and it is quite possible that the flow-plug has helped to hold back the water and allow the well to make its oil.

The methods outlined in this paper have all been successfully demonstrated. Thought should be given to the subject while the wells are still new and before the gas volume and rock pressure have been dissipated. It is not costly to make tests to ascertain which method is best for your wells. Our objective is lower costs and higher yields. Proper handling of the well before it becomes a pumper will help pay dividends.

SHREVEPORT, May 17.—Smitherman and McDonald's Boucher No. 1 in 21-23-11, north Webster parish, completed several weeks ago as a 10 million cubic foot gasser, with a quantity of salt water, has been brought in making from 200 to 500 barrels of oil and 30 million feet of gas from 2705 feet. The well is a wildcat located 12 miles north of Cotton Valley production and two miles northwest of Lloyd Harris Pine Woods Lumber Co., No. 3 in 34-23-11, which was brought in as a wildcat producer in September 1922.

Brock Production As Related To Age

Farm Name	Well No.	Bbls. Initial Production	Bbls. Production May 1, '24.	Age of Well
S. Baptiste	No. 1	80	35	24 Mos.,17 days
	6	235	40	22 6
	10	90	12	19 6
	12	60	15	16 25
	13	70	25	15 7
	16	134	20	11 17
	19	26	19	10 5
M. Farve	1	177	30	22 3
	2	80	24	20 6
	3	70	25	18 14
	6	318	140	14 29
	7	100	20	13 9
	10	119	20	2 15
	11	66	50	1
	12	75	70	1
Marris	No. 1	205	31	23 11
J. Baptiste	2	15	7	9 7

Sixty Years Ago

WHEN gentlemen wore beaver hats and broad cravats, and ladies donned their hoop skirts and pantalets, the cart wheel coppers of their day were not as big in buying power as the pennies of today.

The drummer of '64, for instance, could not buy a Luce Display Case for love or money. He had to show his wares as best he could.

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inner case which holds six 4 oz. bottles and five grease jars. It is covered with durable Keratol and lined with velvet.

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Dozens of other styles in our special catalog of Oil Sample Cases. A copy will be sent *free* upon request.

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Today the Dubbs Cracking Process is yielding 40 per cent to 50 per cent gasoline from gas oil in each through put

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Universal Oil Products Company
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Chicago Illinois

Some Factors In Oil Lease Operation

By Hollis P. Porter,
Production Engineer, Gypsy Oil Co.

Part 2

UNDER the subject of evaporation from fresh petroleum and its relation to losses on the lease, a great deal could be said. It would seem advisable at least to outline some of the fundamentals so that it can be more easily understood why certain things should be done and certain things should not be done to insure a minimum loss due to evaporation.

According to the kinetic theory, the molecules and atoms are in constant motion. In solid bodies, this is restricted by a powerful molecular force which tends to attract when the molecules are close together. In liquids the motion is less restricted than in solids and in gas they are practically unrestricted. Heat in a form of energy, and when applied to a substance, increases the activity of the molecules and enables them to overcome, to some extent, the strong attractive force. A subsequent amount of heat applied to a solid, causes it to become a liquid and an additional amount of heat applied to a liquid causes the same to become a gas. When a gas is condensed and becomes a liquid, or when a liquid congeals and becomes a solid, the inverse of the above must necessarily take place.

At this point it might be well to consider another law which has its effect upon the condensation of hydro-carbon liquids. The one just stated relates to the evaporation of liquids. We may have a condition which may permit us to condense oil vapors, thereby maintaining a better gravity of oil in a tank. Then the **law of partial pressures** may affect the results obtained. By partial pressures, let us explain that a mixture of gases exerts a certain pressure, and each individual constituent of the mixture exerts a certain part of the pressure At sea level the atmospheric pressure is about 15 pounds per square inch. The atmosphere is principally composed of oxygen and nitrogen, there being approximately 1/5 oxygen and 4/5 nitrogen. Then three pounds of the pressure of the atmosphere is due to oxygen while twelve pounds is due to nitrogen.

When a vapor is mixed with other gases or vapors and pressures applied, only a part of the total pressure is exerted on the first named vapor. If this vapor constitutes 10 per cent of the total volume, and provided it would condense at 15 pounds if not mixed with any other vapor, when mixed with the other 90 per cent of vapor which is non-condensible, it will require 150 pounds to condense it.

It will be seen from this law that if there be a considerable amount of condensible vapor in gas which is produced with oil, and if the temperature is lowered and a pressure maintained upon the gas while it is still in contact with the stored oil, a portion of it may be converted into liquid. However, if a considerable amount of non-condensible air is allowed to mix with the vapor before it is confined under pressure, it is probable that the vapor will not condense because the per cent of condensible vapor has been reduced and the pressure required would be increased more than a tank could stand.

It will be seen from the theory advanced regarding evaporation, that it is desirable to keep stored oil cool, and also to keep it under pressure. The cooler and the more pressure, the less evaporation. However, it is not economical to try to maintain a vapor tension so great that there will be a serious loss as soon as it is allowed to come in contact with the atmosphere. With the present methods of pipe line transportation, it seems impossible to handle the oil throughout the system and deliver it to a refinery under pressures which are materially above that of the atmosphere.

This brings up the questions of how much pressure should we carry on the tank, should the tank be shaded to keep it cool, should it be painted a color which absorbs heat or one which reflects heat? Answering these questions, it would seem advisable to maintain not less than atmospheric pressure upon a tank, yet very little more than atmospheric pressure. Most lease tanks are now equipped with atmospheric regulating valves which make it possible to maintain a moderate pressure under all conditions. Some employ insulation on the outside of the tank to keep the sun's rays from heating it. Some build wooden sheds to shade tanks. The ordinary wooden shed provided with ventilators and painted some dark color is not worth the cost. Some producers have built such sheds and assumed that the tanks would keep cooler for the reason that when a man stands inside the shed near the tank, he feels cooler than he does out where the sun's rays hit him. As a matter of fact his sensation is due to evaporation of moisture from his skin caused by a slight draft which apparently keeps him cool. This same draft of air may convey heat from the outside sun's rays to the surface of the tank where it will deliver the heat into the body of the oil through the metal of the tank.

It would seem very necessary to use a light colored paint. It is a well known fact and has been demonstrated by experiments, that light colors do not absorb heat readily, while dark colors and black absorb a great deal of heat. A wooden shed over a steel tank might be beneficial if it were painted a light color. On the other hand, all benefit might be lost due to it being painted black. Some oil companies are spending thousands of dollars doing many things upon leases without making any tests or doing any research work to determine if there are any real benefits to be derived. I predict, however, that the engineer and engineering methods will be employed more and more in the near future, and that mistakes that have often been made in the past will be detected and a material benefit accrue accordingly.

It may be of interest while we are talking about the evaporation of oil, to

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THIS is the second and concluding portion of the paper on lease operating methods delivered by Hollis P. Porter, production engineer with the Gypsy Oil Co., in Tulsa before the Mid-Continent section of the American Institute of Mining and Metallurgical Engineers.

There are a number of practical, every-day questions raised in this discussion. One of them is the efficiency of present pumping methods. Mr. Porter doesn't rate it very highly. He suggests that the subject is worthy of close investigation.

Mr. Porter's curve for determining proper belt sizes, given with this article, is worthy of preservation by all producers. It is not sufficient, he says, to say merely that one size should be used on a 1500-foot well and another heavier belt on a well twice as deep. The proper size depends upon a number of factors, such as the amount of fluid to be lifted, depth of well, weight of rods, etc. These factors are determinable and with the curve the proper size of belt can be determined.—Editor.

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refer to certain records which have been kept on ten 55,000-barrel storage tanks in the Burbank field during a period of one year. The tanks were equipped with gas tight roofs. Five of the tanks were also provided with a covering of sealite which floated upon the oil and was provided for the purpose of minimizing the evaporation loss. Sealite is a mixture of glue and glucose finely beaten up until it becomes a froth. It is then pumped on to the surface of the oil, forming a blanket which is supposed to protect it from fire and also to reduce the evaporation. The average number of barrels lost from evaporation from the five tanks covered with sealite was practically the same as the average loss from the five tanks not covered with sealite. From the ten tanks 1142 barrels of oil were lost.

A careful inspection of the sealite on four of the five tanks was made. The fifth could not be opened for inspection. The condition of the sealite on the four tanks inspected was as follows:

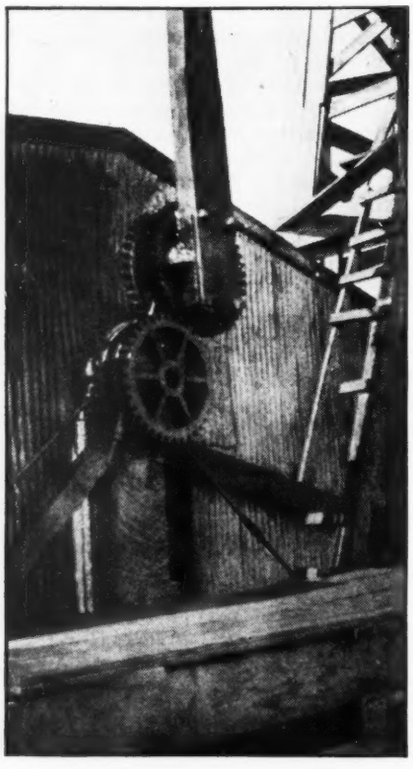
No. 1. ⅜ to ½" thick—in fairly good shape.

No. 2 ½" thick with large uncovered patches.

No. 3. Entirely gone.

No. 4. Entirely gone.

The life of sealite did not cover a period of time sufficient to justify its use, especially in consideration of the fact that there seems to be no benefit where it is used on tanks which have gas tight roofs. The conclusion is that a good gas tight tank is the real answer for reducing evaporation losses.



Long Stroke Pump Gear

This represents a long stroke pumping gear, the ratio of the stroke per minute of the pump to the revolution of the band wheel is 2.22 to 1.

Floating roofs, water roofs and such refinements may come into use some day, but at present there is some question as to their value due to a comparatively low price and an abundant supply of oil, and also due to lack of evidence that any such refinement will result in a saving as compared with a regular gas tight tank.

Records of evaporation and gravity taken from lease tanks have shown that gas tight tanks as compared with open tanks have increased the gravity of light oils in many cases two or three degrees, but oil of medium gravity has been benefitted very little although some volume was saved. Attention is called to the accompanying graphs showing a comparison of records on two leases.

Lifting Oil in the Well

After a well is drilled in, the first production is due to gas pressure or hydrostatic head or both, but in a very short time the gas becomes exhausted to such an extent that the well ceases to flow "natural," and then it is "put on the beam" and pumped. In some cases the hole may stand over half full of oil and the supply is such that the well will produce more oil than can be pumped with the usual working barrel. At this stage it is advisable to swab the well, using a large rubber plunger on a line and drawing it up the casing very much in the manner employed when bailing.

It also happens now and then that it is advisable to install air compressors, and by the introduction of air cause the well to flow more than it would produce otherwise. Such a condition was found upon the Shumway lease operated by the Gypsy Oil Co. in the El Dorado field of Kansas. Here wells that would pump only 500 to 800 barrels per day were made to flow 3500 barrels; but the method of producing from a new well must be changed as the production declines. First the well flows natural; then it may be made to flow artificially; then it becomes a pumper on the beam, and in most fields where the sand is not more than 3000 feet deep, it becomes a jacked pumped well when several wells are pumped from one power. It was considered impractical until recently to put a well that is over 1500 feet deep upon a power, but by means of large diameter band wheels of rugged design, it has been possible to pump wells in the Burbank field which produce from 2800 to 3000 feet deep.

Long stroke devices are being tried on deep wells with three-inch and four-inch tubing when pumping on the beam. A pair of gears connecting the lower end of the pitman with the band wheel shaft, operates the beam through a five-foot stroke and reduces the number of revolutions of the beam in a ratio of 2.22 to 1. A rack and pinion is another device so employed. The merit of these devices is yet to be determined. They do not reduce the power required, but other claims such as increased belt speed and less reversals of the sucker rods are claimed as advantages.

Stock Tanks Shedded

A battery of lease tanks showing wooden shed which was painted black. Note ventilation provided. This shed probably does no good for the reason that hot air circulating transfers the heat to the tanks, and the black paint absorbs more heat than if white paint had been used.

Very little has been published upon the mechanical efficiency of an oil well pump. The writer made a series of tests upon certain wells in Kansas which were pumping on the beam and electric motor drive used. Data gathered from five wells located on two leases furnish sufficient information to conclude that the average mechanical efficiency from the motor pulley to the working barrel inclusive was 45 per cent. The mechanical efficiency of the motor was assumed at 85 per cent. The volumetric efficiency of the working barrel was 73 per cent, assuming it stroked the same distance as shown by the travel on the polish rod. Calculating from these figures, we would have delivered into the oil tank in useful work only 28 per cent of the power delivered into the motor.

Comparing this with a direct connected oil engine pump on a pipe line which has 75 per cent combined efficiency, it is shown that it must require 2.7 horse power at the well to do what one horse power does on the pipe line. This offers a great problem for the mechanical engineer to solve.

There are untold mechanical problems in operating leases. The selection of engines, boilers, and equipment to do the work is not a matter of simply doing the same thing each time that was done on some other property. The equipment should fit the particular job to which it is applied. An example may be taken in respect to selection of a belt for a power or pumping well. There are

many rules to be found for calculating the capacity of belts. The writer selected from six authors data published in catalogs, and found that four of them were worthless; he then plotted a curve which he presents herewith, showing how to calculate a proper size belt for transmitting a given horse power.

First find the speed of the belt per minute by multiplying the diameter of the pulley in feet by 3.1416 and by the revolutions per minute. Then use the curve as per instructions upon the same. Such simple aids as this furnished by mechanical engineers to the operators might save many thousands of dollars to the company where belts which are too heavy or too light might otherwise be used.

It has long been the practice in many fields to gas pump the wells. The practice has come to be known as the application of vacuum. A "U" tube filled with mercury is the instrument used to measure the degree of vacuum. One end of the tube is connected to the casinghead by a small rubber hose and the distance between the level of the mercury as shown in inches represents the measure of pressure less than atmospheric pressure which exists within the well.

Vacuum applied to producing leases assists the flow of gas through the gas lines, and temporarily hastens production of oil from the sand. It does not continue to maintain an increase of production after the effect has reduced the volume of gas in the sand to an extent that there is not sufficient gas to act as a force in driving the oil out of the sand and into the well.

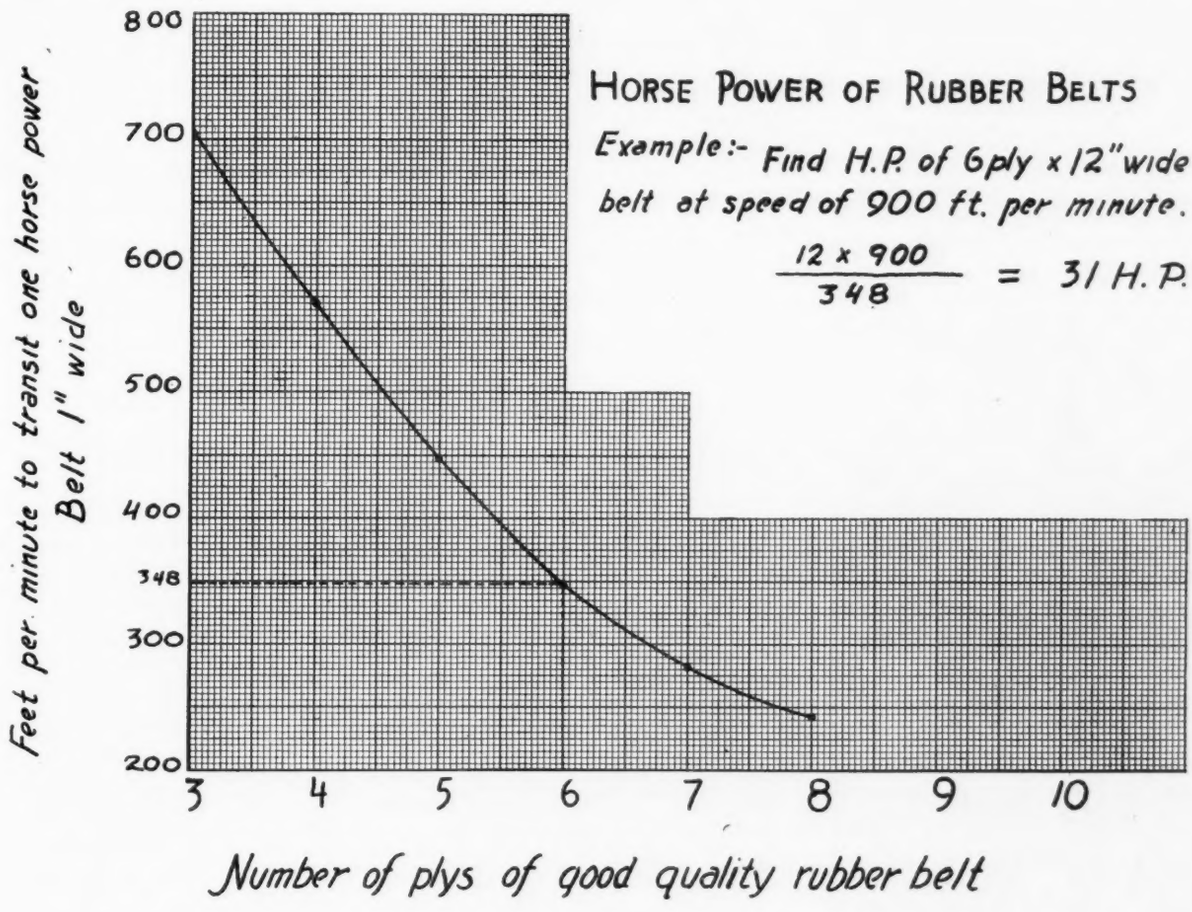
In the old fields of Pennsylvania and Ohio, history is now available which shows that after a lease has declined in production of oil, even after being gas pumped, that application of air pressure to some of the wells will force a great amount of oil from the sand, and in some cases nearly as much oil has been produced in this way as was produced during the flush period of the property.

Flowing is another method of stripping old leases, but space will not permit us to consider further details and factors in oil lease operations at this time.

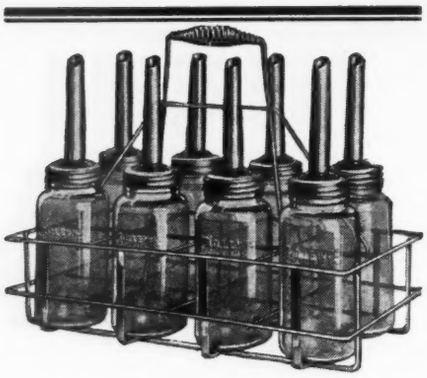
Plan Field Men's Conference

TULSA, May 15.—Approval was given the idea of holding regional plant operator conferences for employees of natural gasoline plants in the Mid-Continent at a meeting of the executive committee of the Association of Natural Gasoline Manufacturers on May 7. The idea was conceived at the recent annual convention at which one session was given over to operators with marked success.

It is planned to hold the first conference for Burbank and Tonkawa employees about the first week in June. A survey is being conducted now to determine the best time and place. The conference will probably be held at Ponca City. Later a second conference will be held in north Texas.



Curve platted by Hollis P. Porter, production engineer, Gypsy Oil Co., for determining proper belt sizes to use for various horsepowers and speeds. Figures at left of chart represent speed in feet per minute to transmit one horsepower through belt one inch wide. Figures at bottom are thicknesses of belts, or number of plys. Example shown by dotted lines indicates that a 6-ply belt one inch wide will transmit one horsepower at speed of 348 feet per minute. To find horsepower a 12-inch, 6-ply belt will develop at 900 feet per minute, multiply twelve by 900, and divide by 348, or 31 horsepower. To find out width of 6-ply belt, for instance, necessary to develop 60 horsepower at 2000 feet per minute, multiply 348 by 60, and divide by 2000, or 10.4 inches. If belt is 7-ply, it gives reading of 280 on curve. Then, 280 multiplied by 60 and divided by 2000 gives 8.4 inches. This is width necessary for 7-ply belt to transmit 60 horsepower at speed of 2000 feet per minute.



Lewis Improved Motor Oil Conveyers

Fastest, Cleanest, Most Satisfactory Method of Dispensing Motor Oil

THE sets are made up of eight transparent glass jars, marked "One Full Liquid Quart," and the measure line designated by arrow. The tops are all metal and equipped with *Lewis Improved* air vents, which cause a rapid even flow of oil and also retards or increases this flow by merely turning jar to right or left while draining. With the *Lewis Improved Conveyers* you serve oil quicker and more satisfactorily than by any other method. You do away with dirt, grit, and sloppiness. *The customer sees just what he is buying and that he gets it all!*

Per Set, Complete with Wire Carrier $6.50
1 Doz. Conveyers, without Carrier 6.50

F. O. B. Kalamazoo

D. D. LEWIS COMPANY
315 N. Church St.
KALAMAZOO, MICHIGAN

I'LL bet I can hold Your Business.

OLD MAN OIL
(Himself)

On The Lazy Bench

Time Will Tell

A youngster visiting an indulgent aunt partook heartily of cake and preserves. When asked if he hadn't had all that was good for him, he replied that he didn't know.

"But what do you think?"

"Ain't any use thinking."

"Well, you're a funny boy," said his aunt. "When will you know?"

"In half an hour."

"And how will you know?"

"Well, that's easy. If I ain't sick in half an hour, I'll be sorry I didn't take more; and if I'm sick I'll be sorry I took so much. That's the only way to tell that I know of."

—Magnolia Oil News.

x x x

Proof Positive

Two negro teamsters were arguing as to how long crap-shooting had been a popular pastime in certain circles. "Ah tell yuh hit was invented in the Spanish-American War," insisted Moses.

"Niggah, yoh ig-rance am shocking," declared Rastus. "A man wrote a book called 'Pair o' Dice Lost' befo' Gawge Washin'ton was bawn!"

—Pure Oil News.

x x x

Where to Find His Church

A stranger in town said, "Mister, can you tell me where the churches of the town are located? A wag replied: "The synagogue is next to the bank; the Episcopalian over by the theatre; the Presbyterian is within two doors of the cold storage; the Baptist is down by the river; the Methodist is next door to the gas plant."

—Magnolia Oil News.

x x x

Delicate Revenge

"You must have made a few enemies in your long political career?"

"More than a few," answered Senator Sorghum. "I have forgiven them all."

"That is magnanimous."

"Not especially. By forgiving them I call their attention to the fact that they never succeeded in injuring me enough to earn my abiding resentment."

—Magnolia Oil News.

x x x

The "P" Is Silent

Subscriber to Information Operator: "Please give me Mr. Dill's telephone number."

"Operator: "Is the initial B as in Bill?"

Subscriber: "No, it's Dill as in pickle."

—Hawkeye Gusher.

Farsighted

The Meanest Man was married the other day. He bought his bride a ten-cent bag of candy for a wedding present and took her for a honeymoon trip on the trolley. When they alighted from the car a couple of pieces of candy still remained in the bag.

"What shall we do with it, dear?" she asked.

"Better not eat it all," he advised prudently. "Let's save some for the children."

—Magnolia Oil News.

x x x

Clever Di

Diogenes was strolling in the dark places with his lantern when he was stopped by one who inquired:

"Sir, are you the Athenian Nut who is looking for an honest man with a lantern?"

"I'm him," said Diogenes. "Who are you?"

"I," said the inquirer, "am your Honest Man!"

"Liar!" shrieked Diogenes. "Get out of my way! No honest man was ever conscious of the fact!"

—Magnolia Oil News.

x x x

No Opposition

Mose (applying alone): "Ah wants to get a marriage license."

Clerk: "Where's the bride-elect?"

Mose: "What you'all mean bride-elect? Dey wan't no 'lection a-tall. De lady done app'inted herself to de office at mah own pussonal request."

—Magnolia Oil News.

x x x

Call It Seven-Eighths

Where's your better half?

Don't know. Never was good at fractions.

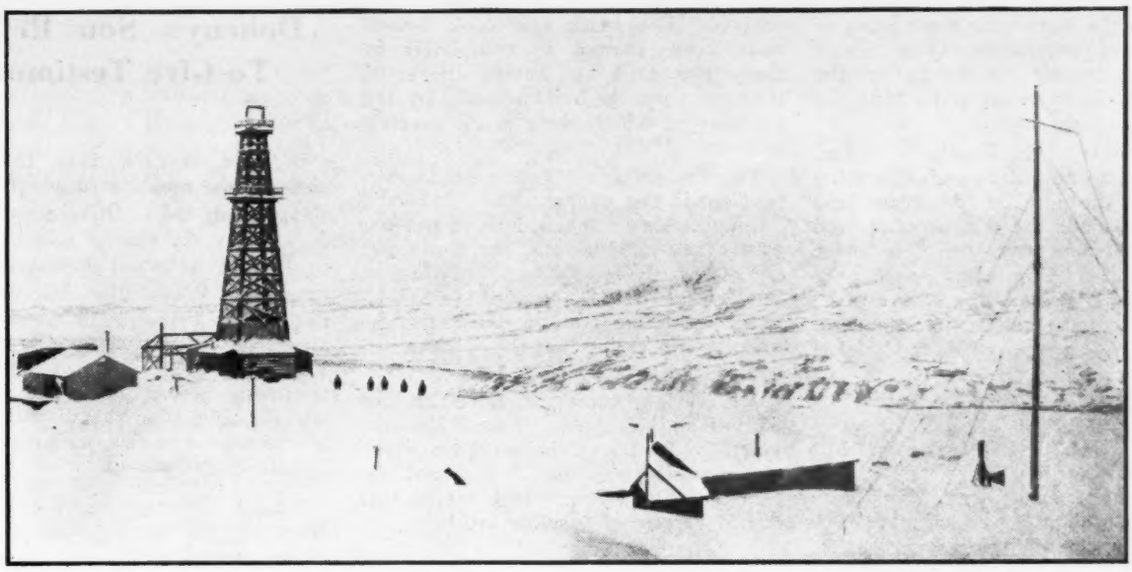
—American Legion Weekly.

x x x

Judge: What have you to say for yourself?

Prisoner: If you can prove me guilty, I'm open to conviction.

—American Legion Weekly.



Standard Oil Co. (California) test on Pearl Creek Dome, Alaska Peninsula, in winter. Camp and wireless in foreground.

Arctic Development Proceeds Despite Wind And Snow Of Winter

Staff Special

SAN FRANCISCO, May 15

INLAND from Kanatak, beyond the south arm of Becharof lake, on the Alaska Peninsula, an outpost of the never-ending search for petroleum is exemplified in the No. 1 Lee test of the Standard Oil Co. (California.)

Silent and impressive, with its background of snow, the California type derrick on location stands as a sentinel, perhaps a forerunner of others to skirt the wind-swept shores of an Arctic area.

Alone it stands, away from other active development. Only the equipment of the Standard's camp and the wireless for communication back home give the appearance in winter of the habitation that goes with intrepid exploration.

Notwithstanding natural obstacles, some of which may be visualized by a glance at the accompanying picture, the Lee test has been carried forward with recently satisfactory results. It is now down 1405 feet, where 12½ inch casing was set in formation of Jurassic age.

Making 50 Feet of Hole Daily

Drilling is proceeding at the rate of approximately 50 feet daily and it will be possible to make about this speed in the formations below the present level. It is possible the present summer will indicate what to expect in oil production from the Pearl Creek dome where this operation is located and where approximately two million barrels of seepage oil is reliably reported to have reached the surface.

Standard owns two sections of approximately 580 acres each, near the top of the dome. Associated Oil Co., of the so-called Southern Pacific group, owns two adjoining sections, development of the latter having been stopped after the drilling of two holes to levels below 600 feet to fulfill lease requirements.

The Standard's test began drilling an 18-inch hole with cable tools, March 19, 1923. In May, the drill had penetrated to 188 feet, where the necessity for straightening a crooked hole arose. By the end of the year, 1075 feet of hole had been drilled, work proceeding carefully but fairly regularly to the present level.

Experiences Of The Men

Geological and other phases of the Standard's and the Associated's search for oil in the Arctic have been previously detailed in the June 6, 1923 and the November 7, 1923 issues of NATIONAL PETROLEUM NEWS. Something of the present aspect of development, however, is interesting, hence the following excerpts from the weekly reports of activity of the little band of employees of the Standard in the Cold Bay district:

Dec. 16: This week the weather has been too severe to move any material. We got a three-ton load to the head of Ugashik Creek, where we were obliged to leave it, on account of mechanical trouble with the tractor. The thermometer registered 14° below at Kanatak and 21° below at the lease, with a strong north wind blowing. Becharof Lake and streams are all frozen over and the snow has drifted deep in many places.

On Sunday night, the 9th, in a blizzard and rough sea, the steamer "Starr," coming fram Kodiak, went on the rocks of Raspberry Island. Mr. Wright, our operator, was trying to connect with the "Starr," when about 7:25 p. m. he heard its SOS call for help. No assistance was near. The lifeboats wer covered with ice and sank as soon as lowered. We could hear all of the messages, asking if help was coming, that they were sinking, and then, finally, the operator's farewell message to his wife.

At 11:30 p. m. the vessel slipped off the rocks, righted itself, and they were able to anchor and keep afloat until towed to Kodiak. The freight on deck was all lost, but our shipment of gasoline and other material was below deck, and we have been informed that nothing of this was lost.

Traps Cover Pearl Creek

Dec. 23: Since trapping season has opened, Pearl Creek dome has been well covered with traps, and the boys have brought in several red fox. All members of the crew are in good health and extend their wishes for a Merry Christmas and a happy New Year to you all.

Dec. 30: This week no material was moved, and most of the time has been spent in repair work. It was necessary to get parts to Half Way House by dog-team so as to get one Caterpillar in shape. The snow is eight to 10 feet deep in places. The Steamer "La Touche", which has taken the place of the "Starr", will not arrive until about Jan. 7. We have had only one mail since the middle of October and considerable of our freight has been detained on account of the wrecking of the "Starr." Your message of Christmas greetings was received by the boys. Our Christmas turkey and provisions were on the "Starr," so we shall probably pull off our holiday dinner sometime in January, when the boat arrives.

Jan. 13: This week the road was opened up and we were able to get

through to the lease with three loads of gasoline and provisions. Otter Creek gives some trouble, on account of the ice forming in crossings and letting the tractors drop through.

The steamer "La Touche" arrived and started to unload cargo. Upon the arrival of the mail, a dog-team was loaded and made the trip to camp and return the same day, traveling more than 40 miles. Dog-teams with the first mail from Bristol Bay have not yet been able to get through, on account of lack of ice on the rivers and lakes farther back.

Volcano in Eruption

Jan. 20: Mt. Pavaloff erupted last week, throwing out ashes and clouds of black smoke, and a series of tremors occurred for about seven minutes. All of the crew are enjoying good health, and the only sickness we have here is homesickness when the mails in winter are too far apart.

Jan. 27: We have had some very severe weather this week, which has prevented the moving of material. The thermometer registered as low as 24° below. It was necessary to leave one tractor near Otter Creek until the weather moderated. The steamer "La Touche" left Monday morning after waiting from Friday noon for an opportunity to discharge cargo and pick up the mail, which it was unable to do.

This is the first time the weather has prevented the mail being taken aboard. The boys have experienced much difficulty in keeping the rig running during the cold spell. Ice accumulates on the crown and has to be cut out, and special care must be taken to prevent the engine from breaking by freezing.

Feb. 3: We moved one load of gasoline to the lease and another as far as Fish Village, where we were obliged to leave it, on account of clutch trouble with the tractor. The tractors were unable to get back to Kanatak this week, due to the cold and a fierce north wind. The "Starr" arrived on the 30th and attempted to discharge freight for Kanatak. The mail and passengers were landed but the provisions could not be taken in.

They placed 59 barrels of our gasoline and the sleds, which we have been trying to get since October, on a barge which was anchored. When I left the barge was iced down and low in the water.

An Indian and I took the mail with a dog-team as far as our lake camp, where we were obliged to lay over until the weather was calmer. The "Starr" was still at Kanatak on the 1st, because the purser had come ashore and then was not able to get back.

Weather Stops Dog-teams

Feb. 10: This week was one of the worst continued spells of bad weather we have experienced. It has been from 10° to 20° below, with a north wind, and there have been many days when a dog-team could not travel. Our water lines have frozen up, although they were well covered. The bunk and cook houses have been snowed in completely in many places. I am having the snow shoveled from the buildings and bracing portions on which there is the greatest pressure.

The cementing of casing presents a problem in this country now. It would be impossible to cement in such weather as we are now having, for the water freezes in the tanks and lines before the cement can be handled. (Note.—With more moderate weather the cementing of casing has been since accomplished.)

Mr. Wright came through with two natives and dog-team from Kanatak yesterday, and says the barge on which our material was loaded had not yet been brought ashore. It is feared that our 59 barrels of gasoline are lost."

Bowling Season Ends For Cincinnati Club

CINCINNATI, May 15.—The Cincinnati Oil Club held its last formal meeting of the year at the Gibson Hotel, Thursday evening, May 8. The next meeting, in June will be an out-door holiday affair at Newport, Ky., and will be the last until fall.

For the past several winters, one of the features of the club's activities, has been a bowling tournament. Teams from several oil companies in Cincinnati have been organized and played for a season's prize, (a silver loving cup.) Last year this was won by the Merchants Oil Co. This year the prize was won by the bowling club of the Cincinnati Oil Works Co. On behalf of the club, Charles Rice, the club's treasurer, and representing the Pure Oil Co. of Cincinnati, presented the silver loving cup to the winning team. It was accepted by E. J. Bengert, the vice-president of the club, and an officer of the Cincinnati Oil Works Co.

Prsident, W. F. Burke of the club, and representing the Kentucky Independent Oil Co. of Covington, Ky., said that the social contact brought about by the club and by such activities as bowling, worked to a better acquaintanceship, which was good for the whole oil industry in Cincinnati. N. M. Hart of the Refiners Oil Co. Cincinnati, is secretary of the club.

W. C. Platt, editor of NATIONAL PETROLEUM NEWS gave a talk on present conditions in the oil industry.

Gasoline Plant for Ranger

FORT WORTH, May 15. — The Phillips Petroleum Co. is resuming activities in the Ranger district, after having deserted this section for several years. A casinghead gasoline plant will be constructed 15 miles south of Ranger with an initial expenditure of $150,000 it is stated, headquarters being established in the old Phillips Petroleum camp at Ranger. Similar plants of the company are located at Pioneer, Graham and Breckenridge.

Doheny's Son Refuses To Give Testimony

By Special Correspondent

WASHINGTON, May 15.—A new phase to the question of whether Albert B. Fall, Edward L. Doheny and Edward L. Doheny, jr. can or will be indicted by the special grand jury that has been sitting in Washington for more than two weeks listening to testimony, has arisen in connection with a refusal of Edward L. Doheny the younger to give testimony before the grand jury, notwithstanding that the district attorney has assured him that no prosecution of him is contemplated.

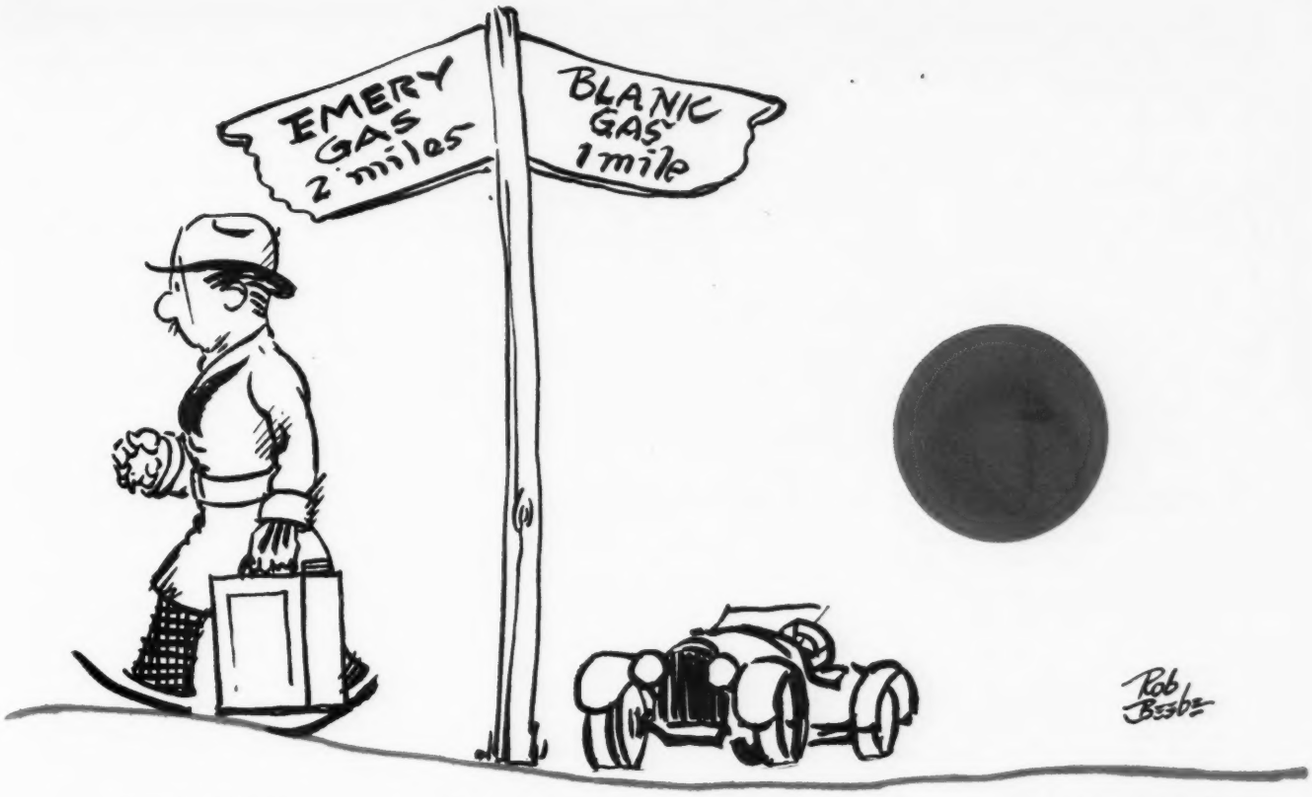
Young Doheny has been taken to court and the question has been raised as to whether he has not put himself in contempt of court by his refusal to testify on the assurance that he will not be prosecuted. The fact that he had been promised immunity came out in connection with his presentation and the suggestion to the court that he was in contempt for failing, as the layman might say, "state's evidence" against his father. The theory that he would be turning state's evidence is based on the fact that he carried the money which the elder Doheny said he loaned to Albert B. Fall, and the thought that by so doing he also committed an offense.

The younger man refused to testify on the ground that he had not committed any crime but that, in view of the allegations made in connection with the transaction under inquiry, his testimony might tend to incriminate him. When he was brought into court, he said he gave that answer on advice of counsel. Owen J. Roberts, jr., special counsel for the government, in an expostulary way, said he had refused to testify notwithstanding the assurances of the district attorney that no charge against him was in contemplation.

Assistant Secretary Finney of the interior department, W. J. Zevely and others who took part in the proceedings at the capitol before and after the revelation of the loan transaction, have been summoned and appeared before the grand jury which young Doheny refused to enlighten.

Good Well in Cromwell

TULSA, May 15.—Latest well in the Cromwell field Seminole county is Amerada Petroleum Corp. No. 1 Brunner, N. E. corner NE SE of 16-10-8, a quarter mile south of the big well of T. B. Hoffer and others. The Amerada well got pay sand at 3503 feet and at six feet in started off at the rate of 2500 barrels a day. The next well to be completed in the field should be H. F. Wilcox Oil and Gas No. 2 O'Neal S. W. corner SE SW of 15-10-8, which topped the sand at 3408 feet and is drilling in. It is making two million feet of gas.



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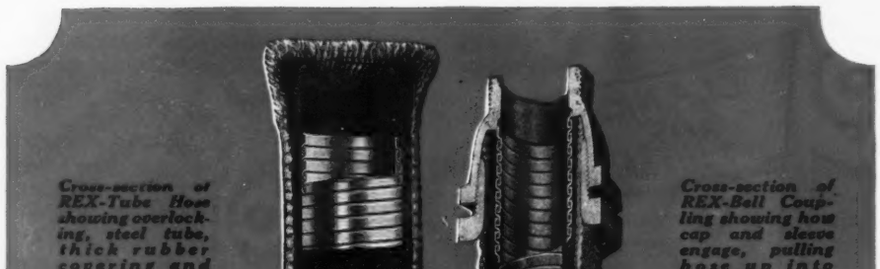

Cross-section of REX-Tube Hose showing overlocking, steel tube, thick rubber covering and heavy braid.

Cross-section of REX-Bell Coupling showing how cap and sleeve engage, pulling hose up into coupling.

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Prizer Suggests Changes In Present Calendar

CLEVELAND, May 15. — Simplification and revision of our present calendar to meet existing industrial and social requirements, with changes that would eliminate the awkward and inconvenient system of the 28 to 31 day months, was the keynote of the address delivered by Edward Prizer, chairman of the board of the Vacuum Oil Co., New York, before the twelfth annual meeting of the Chamber of Commerce of the United States held here this week.

The present calendar, created by Caesar, is in the opinion of many, Mr. Prizer said, an unnatural, unscientific and arbitrary sub-division of the years and inconvenient for modern industries. The months as at present arranged as to days, do not constitute an equal measure. There is, for instance, 11 per cent difference between the shortest and longest month. Salaries, rents and all expenses, however, are based upon present monthly divisions and monthly business expenses are prorated through the year on the basis of the months, notwithstanding that these expenses are in this way unfairly apportioned, Mr. Prizer stated.

Two plans, one of which has the endorsement of the American Equal Month Calendar Association of Minneapolis and the other known as the "Swiss Plan" which is making headway in Europe, have been offered as improvements to the present system.

The former plan comprises dividing of the days of the year into 13 months of 28 days each, the additional month to be inserted in the midyear between June and July and given some appropriate name. New Year's Day would have no week-day name and would be designated on the calendar simply as Jan. 0. This would give a total of 365 days to the year. When leap year occurs, the additional day would also have no week-day name but would be known as "leap year day" and placed between the last day of June and the first day of July as a full holiday.

"The year is to begin with Monday, which shall, therefore, be the first day of the month." said Mr. Prizer. "Monday in the year 1928 will fall naturally upon Jan. 1, so that would be the year when the change could be made without any dislocation of any present week days or dates. By this plan Monday would not only become the first day of every year, but also the first day of every month, every week and every quarter for all time, and the other days will follow in natural sequence. As a consequence, calendars would become unnecessary and in time obsolete because the days and dates automatically take care of themselves. All business statistics would be worked out upon 13 equal monthly periods of 28 days each, each month contain exactly the same number of Saturdays and Sundays."

The objection to this plan, Mr. Prizer points out, would be that the insertion of the additional month is a radical departure from the present 12-month division

and that it could not be divided into epual quarterly or semi-annual periods which is common practice in industry.

The "Swiss Plan" involves dividing the year into 12 months of four quarters of three months each, with the first month of each quarter having 30 days; the second month 30 days, and the third month 31 days, making 91 days in each quarter or 364 days in all. The remaining day would be New Year's day and would precede Jan. 1. In leap year the extra day would be a holiday following Dec. 31 or placed in the middle of the year following June 31, and would be designated by some appropriate name, such a "leap day."

In this plan Jan. 1 would begin on Monday as would the first month ot every quarter for every year. The second month in every quarter would begin on Wednesday and the third month on Friday. The 30-day months would have four Sundays and the 31-day months five Sundays so that the number of week days in every month would be 26 and holidays would always fall on the same day of the week

The disadvantage of this plan is that it prevents the fixing of the week day in a permanent relation to a given date, and breaks up weeks in relation to the beginning and ending of given months, Mr. Prizer said.

Among other oil men attending the convention were A. C. Bedford, chairman of the board of the Standard Oil Co. of New Jersey, New York, who was made honorary vice president of the National Chamber of Commerce; and John M. Crawford, president of the Parkersburg Rig & Reel Co., Parkersburg, W. Va., who just returned from a trip to California, and who was re-elected a director of the National Chamber; O. D. Donnell, vice president, Ohio Oil Co., Findlay, O., Frank B. Fetter, president, National Refining Co., Cleveland; W.H. Lamprecht, vice president, National Refining Co., Cleveland; Harry Smith, secretary, Mid-Continent Oil & Gas Ass'n., Tulsa, Okla; William H. Thompson, secretary, Ohio Gas & Oil Men's Ass'n., Columbus, O; and M. G. Vilas secretary-treasurer Standard Oil Co. of Ohio, Cleveland.

California And Foreign Receipts Lose

NEW YORK, May 15.—Receipts of California oil (crude and refined oils) at Atlantic and Gulf Coast ports for the month of April totaled 4,323,000 barrels, a daily average of 144,100 barrels, compared with 4,563,000 barrels, a daily average of 147,194 barrels for the month of March.

Receipts at Atlantic and Gulf Coast ports for the week ended May 3 totaled 908,000 barrels, a daily average of 129,714 barrels, against 764,000 barrels, a daily average of 109,143 barrels for the week ended April 26.

(Barrels of 42 gallons)

	Total Month of April	Total Month of March	Week Ended May 3	Week Ended Apr. 26
At Atlantic Coast Ports				
Baltimore	244,000	188,000	.....	.....
Boston	147,000	(a)222,000	.....	77,000
New York	3,324,000	(a)2,883,000	839,000	586,000
Philadelphia	384,000	927,000	78,000	80,000
Others	224,000	343,000	.....	21,000
Total	4,323,000	4,563,000	908,000	764,000
Daily Average	144,100	147,194	129,714	109,143
At Gulf Coast Ports	.....	.....	.....	.....
Total Atlantic and Gulf Coast Ports	4,323,000	4,563,000	908,000	764,000
Daily Average	144,100	147,194	129,714	109,143

(a) Revised.

According to figures collected by the American Petroleum Institute, imports of petroleum (crude and refined oils) at the principal ports for the month April totaled 8,139,000 barrels, a daily average of 271,300 barrels, compared with 9,296,000 barrels, a daily average of 299,871 barrels for the month of March.

Imports at the principal United States ports for the week ended May 3 totaled 2,024,000 barrels, a daily average of 289,143 barrels, compared with 1,587,000 barrels, a daily average of 226,714 barrels for the week ended April 26.

(Barrels of 42 gallons)

	Total Month of April	Total Month of March	Week Ended May 3	Week Ended Apr. 26
At Atlantic Coast Ports				
Baltimore	662,000	657,000	349,000	30,000
Boston	678,000	628,000	210,000	107,000
New York	1,593,000	1,255,000	392,000	436,000
Philadelphia	341,000	552,000	50,000	64,000
Others	1,139,000	1,296,000	304,000	140,000
Total	4,413,000	4,388,000	1,305,000	777,000
Daily Average	147,100	141,548	186,429	111,000
At Gulf Coast Ports				
Galveston district	1,714,000	2,054,000	325,000	433,000
New Orleans and Baton Rouge	1,524,000	1,618,000	304,000	156,000
Port Arthur and Sabine district	420,000	990,000	90,000	183,000
Tampa	68,000	246,000	.....	38,000
Total	3,726,000	4,908,000	719,000	810,000
Daily Average	124,200	158,323	102,714	115,714
At All U. S. Ports				
Total	8,139,000	9,296,000	2,024,000	1,587,000
Daily average	271,300	299,871	289,143	226,714

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Urges Uniform Method Of Correcting Volume For Temperature

CLEVELAND, May 16

THE importance of a uniform table or system for use throughout the industry in figuring volume corrections for oil at varying temperatures, was emphasized in the report of the department of standards and tests of the National Petroleum Association, which was read by O. P. Keeney, Tide Water Oil Co., chairman of the department, at the spring meeting of the association at Cambridge Springs, Pa., last month.

Universal adoption of the table of coefficients of expansion of oil, that is now being prepared by the Bureau of Standards, as the uniform standard method of the industry, was strongly urged.

It was pointed out that after the American Petroleum Institute at the request of the National Petroleum Association had appointed a special committee to draw up a prospectus of the necessary tables and after the table had been prepared, submitted to the industry and approved and after the Bureau of Standards, with this approval had begun the work of preparing the tables, the transportation committee of the institute adopted a resolution requesting the institute to develop an abridged table of coefficients of expansion of oils on the assumption that the table being prepared by the Bureau of Standards would be too long for practical use. The report goes on to say:

"This has caused considerable discussion and it has been impossible to get ageement on just what the abridged table should be. Everybody concedes the need for one uniform table or system for correcting for temperature variations, and everyone concedes that the table of the Bureau of Standards is accurate and authentic. The advocates of an abridgment do not agree, however, on what it should be.

"It has developed that the proposed abridged table is deficient in a number of respects, thus again opening the question as to what abridged table should be adopted if it is decided that an abridged table is necessary.

"Through its intimate association with this problem since 1919, this department of standards and tests feels that the true solution is in the industry adopting the correcet and complete Table of the Bureau of Standards. We point out that the only possible objection to this table is its length and in this respect, it is no worse than gravity correction tables or Boyd's tank car book. The forthcoming table of the Bureau of Standards is very simple to use—just as simple as any abridgment —and we believe that accuracy cannot and should not be compromised. As a department of standards and tests we are interested in promoting permanent and universal uniformity and standardization; and we feel that no arbitrarily or empirically abridged or abbreviated table of correction factors will fulfill this lofty but justifiable aim. What is satisfactory today for product groupings on a gravity basis will not be workable 10 years from now, if history repeats itself.

"What abbreviation is satisfactory in one part of the country or in one division of the industry is not best adapted to other sections and divisions. We, therefore, recommend to this association and to each individual member that they at once write to the American Petroleum Institute endorsing the Bureau of Standards table to the exclusion of all abridgments."

Make certain that the thermometers used comply exactly with the thermometers specified in the test methods.

Test all the thermometers for accuracy when they are first received; and frequently re-check open cup flash, Pensky-Martens high range and distillation thermometers.

Do not use cheap thermometers.

Where no thermometer is specified in the test method, use one graduated for the proper immersion, or make emergent stem corrections, or use any other means to secure true and accurate temperature measurement.

Where the thermometer is specified, emergent stem errors, if any, become an experimental constant of the test method and, therefore, are not to be taken into consideration—*From report of department of standards and tests, National Petroleum Association.*

Concerning developments in tests, specifications and testing methods during the year, the report calls attention to the revision of government specifications for lubricants and liquid fuels put out by the Federal Specifications Board under date of March 18, 1924 as Bureau of Mines Technical Paper 323A, superseding Technical Paper 323.

The revisions and additions contained in Technical Paper 323A have already been published in this paper. The new specifications become effective June 18, 1924. Concerning other developments in the line of testing methods, the report says:

"Committee D-2 of the American Society for Testing Materials has continued active and at the June meeting of the society, will present a tentative burning test for illuminating oils which has been worked out with a great deal of care and is based on present and past practices.

"The American Petroleum Institute committee on viscosity standards has worked out a practical method for the standardization of Saybolt Universal viscosity and a practical working standard for normal Saybolt viscosity has been set up at the Bureau of Standards. Individual owners of Saybolt instruments may have them standardized in either of two ways:

1. By setting aside a good-sized sample of a suitable oil (say a well-filtered neutral of about 200 viscosity at 100), and sending a half pint sample of this to the Bureau of Standards, Washington, D. C., for the determination of normal Saybolt Universal viscosity at 100°F. The retained sample can then be run in the owner's individual tubes under standard conditions; and from the Bureau of Standards' report, and results on the individual tubes, corrections, if any, can be determined for different Saybolt tubes.
2. A Saybolt tube itself, may be sent to the Bureau of Standards for the certification of the "A" factor. The report returned by the bureau will make clear what corrections, if any, are to be applied.

"The A. P. I. committee on viscosity standards has also practically completed its work on Saybolt Universal at 210° and Saybolt Furol. It has been ascertained that a tube accurately standardized at 100° has the same correction curve, if any, at 210°.

"In connection with the sub-committee on viscosity of Committee D-2, the present A. S. T. M. method for Saybolt Furol and Universal viscosities has been improved to provide for the following in standardization work and referee tests:

"(a) The bath in all cases shall be distilled water.

"(b) The bath temperatures shall be:

Bath Temperature	For Viscosity Determination at
Not higher than 100.25°F	100°F
Not higher than 130.50°F	130°F
Not higher than 212°F	210°F

"(c) The room temperature must be between 68° and 86°F.

"(d) The bath must be maintained at a constant temperature throughout the entire test and a temperature such as will give the required standard temperature (100°, 130° or 210°F.) in the oil tube when thermal equilibrium has been

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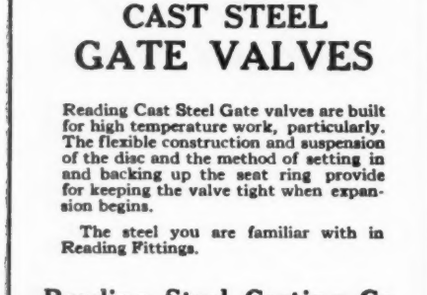

This NEW edition of the TAG Manual includes the complete and official A. P. I. Gravity Temperature Correction Tables as revised and adopted by the U. S. Bureau of Standards, the U. S. Bureau of Mines and the American Petroleum Institute. In addition, the Manual includes nine other tables and detailed procedure for conducting thirty-two routine oil tests. 112 pages, size 5x8 inches. It fits the pocket and fits the field. Durable and good-looking blue cloth binding stamped in gold. Every oil man can use a copy of this recognized standard publication. Price $1.00 each, plus postage.

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reached just prior to withdrawing the thermometer and running the test.

"(e) The water bath for the 210° determination shall be heated by live steam injection and, if necessary, the bath shall be closed and a back pressure put on it sufficient to secure the required temperature, which shall not be above 212°F.

"These conditions are in agreement with those employed in the better laboratories and introduce no new hardships in viscosity determination.

"It should be realized in viscosity determinations that absolute temperature control and accurate thermometers and a properly standardized instrument are essential for good results. Temperature control cannot be effected without a well-stirred bath. The orifice of the instrument is easily damaged and this should be constantly kept in mind.

"The current A. S. T. M. method for determining Cleveland open cup flash and fire has been well scrutinized during the past year, by the chairman of the sub-committee sending out 10 samples of oils ranging from 300° mineral seal to 630 flash Pennsylvania stock to nine different laboratories. In general, the agreement of the results is satisfactory. This investigation brought out that it is absolutely essential all drafts be excluded from the vicinity of the cup during the determination; also, the rate of heating must be kept uniform and normal. In cases where laboratories deviated from what are the apparently correct results deviations were caused by failure to meticulously follow out the method.

"The new method provides for the use of a plate with a hole almost the size of the cup cut out in the center. This permits maintaining the proper temperature rise with a poorer gas burner. With this new plate, which makes no difference in the results as demonstrated by the work described above, no difficulties should now be experienced in heating.

"The sub-committee on Wax of Committee D-2 have demonstrated that the press method for determining oil and moisture in wax is unreliable and this committee is now working hard towards the perfecetion of a satisfactory method.

"This department again emphasizes the necessity of working with standard apparatus and of exactly following the printed methods in all referee and inspection tests. It is not intended that these tests be used in plant control work although many of them can be so used to advantage."

The report then goes on to summarize the tests and standards as adopted by the National Petroleum Association revised to date. It points out again that the relationship between true specific at 60 F. and degrees A. P. I. (no longer degrees Baume) is on the basis of the 141.5 modulus.

Method of making distillation tests of gasoline, naptha and kerosene is A. S. T. M. D86-23T which is practically the same as prescribed in Technical Paper 323A. The cotton is left off the bulb of the thermometer and the provision in the government specifications for small corrections for barometric pressure variations are disregarded. The current A. S. T. M. method is regarded as the standard of the association.

Other standard tests of the association are:

"Doctor test gasoline, naptha and kerosene; Technical Paper 323A, pages 85-86.

"Mineral acids in gasoline; Technical Paper 323A, page 80.

"Flash point of kerosene and other petroleum products of comparatively low pressure; Tag closed cup tester. A. S. T. M. D56-21, Technical Paper 323A, pages 52-55.

"Burning test for prime white and water white kerosene; Technical Paper 323A, page 67.

"Color test for gasoline, naptha and kerosene; Saybolt chromometer, A. S. T. M. D156-23T, Technical Paper 323A, pages 30-32.

"Floc test for kerosene; Technical Paper 323A, page 64.

"Sulfur in gasoline, naptha and illuminating oils; a quantitative determination of total sulfur. A. S. T. M. D90-21T. Technical Paper 323A, pages 81-83.

"Viscosity of heavy fuel oils, road oils and asphaltic fluxing oils; Saybolt Furol viscosimeter. A. S. T. M. D88-23T. Technical Paper 323A, pages 39-42.

"Calorific value determination on oils used for fuel; a bomb calorimeter shall be used according to the best practices of manipulation and computation.

"Distillation method for gas oils, etc.; A. S. T. M. 158-23T. Reprint 1923 report Committee D-2, pages 11-15. Proceedings A. S. T. M. Vol. 23, Part I, pages 703-707. This is a new method superseding, as regards gas oil, light fuel oil, etc., Serial Designation D20-18.

"Determination of water in petroleum products; Distillation method. A. S. T. M. D95-23T. Technical Paper 323A, pages 67-70.

"Determination of water and sediment by means of centrifuge; A. S. T. M. D96-21T. Technical Paper 323A, pages 70-72.

"Determination of total sulfur in all oils except gasoline, naptha and kerosene; this is the oxygen bomb method A. S. T. M. D129-22T. Technical Paper 323A, pages 84-85.

"Color of lubricating oils; N. P. A. color. A. S. T. M. D155-23T. Technical Paper 323A, pages 33-36.

"Viscosity of lubricating oils; A. S. T. M. D88-23T. Technical Paper 323A, pages 39-42. Note: See discussion in the foregoing part of this report.

"Flash and fire points of lubricating oils; A. S. T. M. D92-23T. Technical

Paper 323A, pages 61-64. Note: See discussion in first part of this report.

"Carbon residue; Conradson carbon residue. A. S. T. M. D47-21 Technical Paper 323A, pages 79-80. The Federal Specifications Board method differs from the A. S. T. M. method in that the A. S. T. M. method provides for a sample of 10 gm. in all cases, while the F. S. B. method requires:

"10 gm. sample when carbon residue is below 1.5 per cent; 5 gm. sample when carbon residue is between 1.5 and 3.0 per cent; 2 gm. sample when carbon residue is above 3.0 per cent. Committee D-2 is actively working on the improvement of this test.

"Cloud and pour points; A. S. T. M. D97-23T. Technical Paper 323A, pages 36-39. The F. S. B. method is A. S. T. M. Serial Designation D97-22T. It differs from the 23T method only in wording—the latter being more explicit. This method is not yet entirely satisfactory with some cylinder stocks and black oils, the apparent pour points of which are affected by conditions of storage and sampling. Committee D-2 is vigorously continuing its work on this test and further modification may be expected.

"Free acid in lubricating oils; A. S. T. M. D47-21. Technical Paper 323A, pages 80-81. Alkali Blue 6B is a very nice indicator for this test. when a satisfactory product is obtainable. Supplies in the past have been erratic and unreliable. It is essential that the alcohol be neutral and that the alkali solution be properly standardized.

"Precipitation number (tar test); A. S. T. M. D97-21T. Technical Paper 323A, pages 73-75. This test is not entirely satisfactory, chiefly due to variability in solvent action of various "diluents" all meeting the specification. Committee D-2 is working on the perfection of this test.

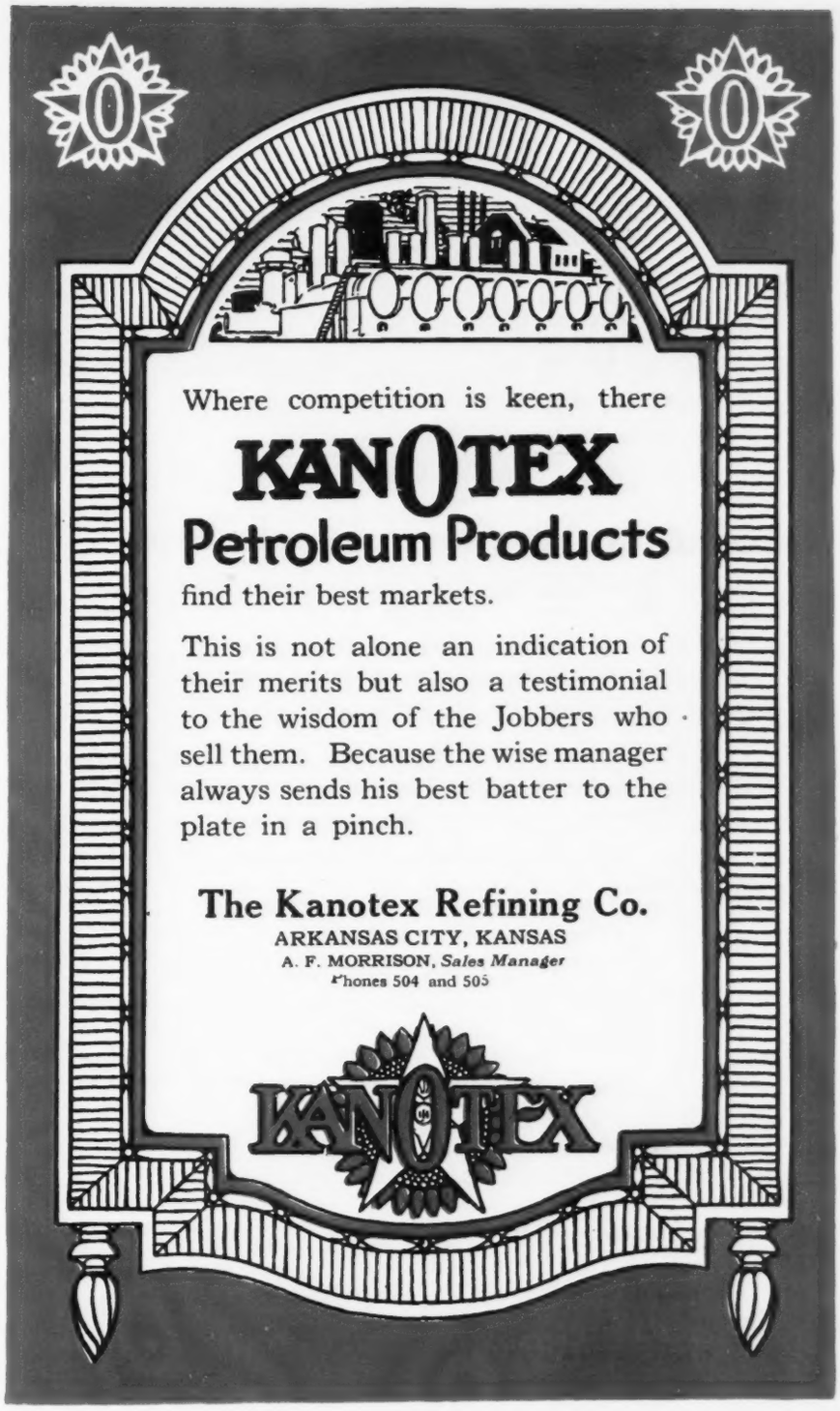
"Detection of free sulfur and corrosive sulfur compounds; A qualitative test only. The copper strip test for gasoline, naptha and kerosene. A. S. T. M. D130-22T. Technical Paper 323A, page 86.

"Pensky-Martens closed cup flash; A. S. T. M. D93-22. Technical Paper 323A, pages 55-61. The Pensky-Martens closed flash is **not** recommended for lubricating oils, most especially all cylinder stocks.

"Saponification number; A. S. T. M. D94-21T, Technical Paper 323A, pages 87-88.

"Melting point of paraffin wax; A. S. T. M. D87-22, Technical Paper 323A, pages 42-45. The "A. S. T. M. paraffin wax melting point" is essentially the same as the 'English melting point.' The so-called 'American melting point' is an arbitrary figure 3.0°F. higher than the A. S. T. M. paraffin wax melting point.

"Melting point of petrolatum; A. S. T. M. D127-22T. Technical Paper 323A, pages 45-46. The melting point of petrolatum is not a definite physical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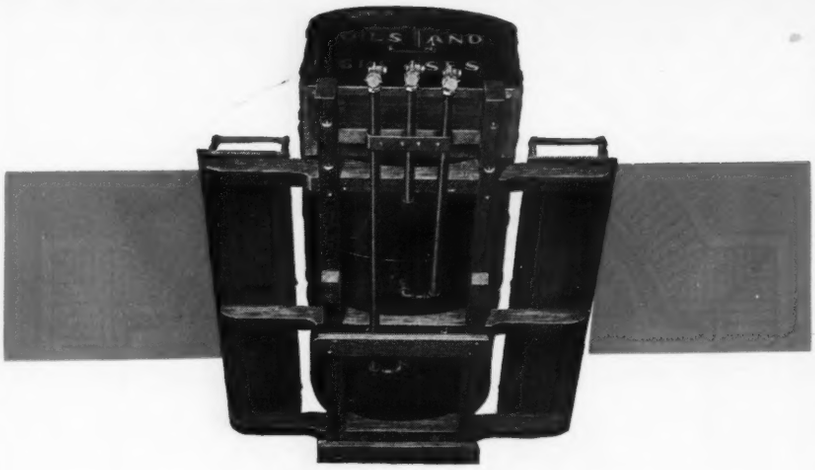

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Rockford, Illinois
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property, like the melting point of paraffin wax and is, therefore, not capable of being determined with a very high degree of reproducibility. Different laboratories should check one another by 2.0°F., which is as good reproducibility as may be expected by this (or any other) method.

"Grease analysis; A. S. T. M. D128-22T. Committee D-2, 1922 Reprint pages 11-19. Proceedings A. S. T. M. Vol. 22, Part I, pages 768-776. The A. S. T. M. will probably make some minor improvements to this method this year.

"Emulsification of lubricating oils: A. S. T. M. D157-23T. Reprint 1923 report Committee D-2, pages 59-63. Proceedings A. S. T. M. Vol. 23, pages 685-689. Much additional work of Committee D-2 during the past year has further demonstrated that this is the best all-around emulsion test that has yet been proposed."

Foreign Opportunities

Reserved information may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, and its district and cooperative offices by duly registered firms and individuals upon written request by opportunity number. The Bureau does not furnish credit ratings or assume responsibility as to the standing of foreign inquirers; the usual precautions should be taken in all cases, and where no references are offered it does not necessarily imply that satisfactory references could not be given. Correspondence may be in English unless otherwise stated.

9769.—**Paraffin scale,** Glasgow, Scotland, purchase.

9794.—**Paraffin wax for candles,** Damascus, Syria, purchase and agency.

9796.—**Candles,** Belfast, Ireland, purchase and agency.

9956.—**Paraffin for candles,** Tsingtau, China, purchase.

9957.—**Match wax,** Antwerp, Belgium, purchase.

9976.—**Paraffin wax,** Stavanger, Norway, agency.

9989.—**Paraffin scale and wax,** Holyhead, Wales, purchase.

10022.—**Transformer oil,** 5000 kilos, Montevideo, Uruguay, purchase.

10031.—**Petrolatum pomade,** Amsterdam, Netherlands, purchase.

10042.—**Lubricating oils,** • Caracas Venezuela, agency.

10049. — **Table paraffin,** Hamburg, Germany, purchase.

10064.—**Petroleum and lubricating oils,** Bridgetown, Barbados, agency.

10168.—**Kerosene, benzine, lubricating oils,** Haifa, Palestone, agency.

10176.—**Half refined paraffin,** Milan, Italy, agency.

10177.—**Petroleum*,** Vienna, Austria, exclusive agency.

10178.—**Lubricatng oils, fuel and gas oil, paraffin,** Vienna, Austria, purchase and agency.

*Kind not specified.

New Oil Station Construction

New York—Lewis Oil Corp., 25 Broadway, announces it is completing 11 service stations out of 100 it plans to build this year. The company already has stations in New Jersey and Ohio. It also has completed one bulk station and plans to build four more, according to W. A. Eddy, president.

* * *

Cleveland, O.—Cleveland Refining Co. recently opened its first filling station here. Expects to build several stations here in the near future, according to Ray Q. Boltz, vice president and general manager.

* * *

Lexington, Ky.—Five filling stations being erected here, one each by Standard Oil Co. of Kentucky, W. B. Laurdge, E. V. Bigerstaff, John Fields and T. L. Warren, according to Y. W. R. Price of Woodland Service Station

* * *

Alton, Ill.—Napp Bros. opened garage and service station on May 10. Paul Armstrong, for several years superintendent of Heuser's Garage, building service station here to handle Standard Oil Co. of Indiana products.

* * *

Eaton, O.—An up-to-date station with all modern conveniences, including two rest rooms, air pumps, double concrete driveways, and flowers to beautify the grounds, is being built here for the White Star Refining Co.

* * *

Ashtabula, O.—A fourth Central Standard Service Station erected here by H. D. Cook was recently opened for business. Lynn Hodges and Richard Seyler are in charge of the station.

* * *

Lakin, Kan.—A filling station will be erected here for George Winland. A free campground for the convenience of tourists will be located at the back of the station grounds.

* * *

Washburn, Wis.—Northwestern Oil Co. just completed bulk station here. Mr. Rivers of Rivers Transportation Co. will handle business.

* * *

Plato, Minn.—Grant Antonson, of Buffalo Lake, Minn., erecting bulk station here.

* * *

Gravette, Ark.—The Bear Cat Oil Co. completing bungalow type stucco drive-in filling station here.

* * *

Ashdown, Ark.—Hartfield & Dunney Bros. completing up-to-date drive-in filling station here.

* * *

Harriman, Tenn.—Gulf Refining Co. new bulk station here will be in charge of William West.

Lyman Spalding, president of the Spalding Service Co., Inc., Roanoke, Va., reports that his company has opened its fifth drive-in service station here which will handle Minamax Motor and high test gasoline exclusively. Mr. Spalding says that business prospects are good in his territory.

* * *

Cozad, Neb.—A filling station, which is scheduled to open May 10, is being erected here by the Robertson Oil Co. It is constructed of veneer brick and white stucco and will contain two rest rooms. A 10-gallon pump will be installed.

* * *

Syracuse, N. Y.—The Wellin Oil Co. has filed a new application for permit to build a service station here. It was refused a permit previously by the department of public safety.

* * *

Morton, Minn.—Fesenmaier Bros. purchased a lot here on which they expect to erect a filling station. They will handle Energy gasoline and Puritan motor oils and greases.

* * *

Cannelton, Ky.—Standard Oil Co. of Kentucky will erect a bulk station here which will serve as a distributing point for Perry county. Two tanks will be installed, an unloader and a garage built.

* * *

Benwood, W. Va.—Work has already been started on a modern service station here for James Paull of Wheeling. A complete line of accessories will be handled in connection with gasoline and oils.

* * *

Royal Oak, Mich.—The R. E. Gustafson Tire Co. is contemplating the erection of a filling station in connection with its tire and accessory store.

* * *

Russellville, Ark.—The Waite Phillips Oil Co. of Tulsa, Okla., is opening a warehouse and filling station here, which it expected to have in operation by May 1.

* * *

Fort Dodge, Ia.—Two filling stations will be built here, one for James Elks and the other for Skelly Oil Co., of Eldorado, Kan.

* * *

Battle Creek, Mich.—A gasoline station is being erected here for Fred Taggart and Harry Morris of Pennfield township.

* * *

Cleveland, O.—The Columbia Refining Co., with general offices here, has purchased four sites at Norwalk, O., on which it expects to erect filling stations. Two stations are already under construction and the other two will be

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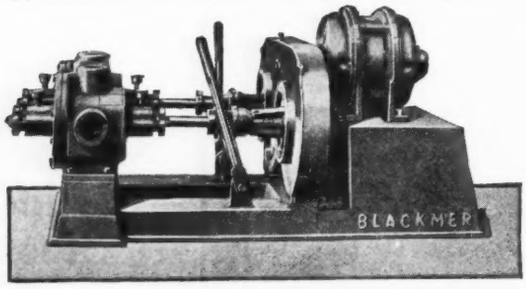

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You would see that it utilizes centrifugal force, not only to pump liquids, but also to compensate every particle of wear as rapidly as it occurs. The four bronze buckets are set loosely in recesses in the revolving piston and ride lightly against the cylinder wall,—held there by centrifugal force.

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Clayton Oil & Refining Co.
Dallas, Texas

started in a short time. A bulk station also will be built at Norwalk, according to Burt Zimmerman, secretary of the company.

* * *

Gallipolis, O.—Williams & Scarberry are planning to erect a service station here on their newly acquired property. An automobile laundry and branch accessory station will be built in connection with the filling station.

* * *

Cherokee, Ia.—The Sinclair Refining Co. plans to install a 15,000 gallon gasoline tank, a 12,000 gallon kerosene tank and a small warehouse here. The company has also taken an option on some property here on which it may erect a filling station.

* * *

Iowa Falls, Ia.—The Standard Oil Co. of Indiana recently bought property here on which it expects to build a filling station.

* * *

Sayville, N. Y.—Work on a service station for the Premm Garage Corp. of Bay Shore, has been started here. It is expected to be completed by May 30.

* * *

Nashville, Tenn.—The Benzol Gas Corp. is adding to its storage capacity a 63,000 gallon tank which gives it a total of 175,000 gallons capacity.

* * *

Ortonville, Minn.—A modern filling station is being built here for the Ortonville Oil Co., of which J. A. Anderson is proprietor.

* * *

Wesley, Ia.—The Standard Oil Co. of Indiana and Sinclair Refining Co. are planning to built service stations here in the near future.

* * *

Jasper, Ind.—Standard Oil Co. of Indiana opened a service station here the past month, in charge of Allie J. Sermersheim and Raleigh Poe.

* * *

Slater, Mo.—Hugh Montgomery is building a filling station here which will be completed as soon as weather permits.

* * *

Paducah, Ky.—A filling station is being built here by Tom Reynolds of Union City, Tenn.

* * *

Cuba, Ill.—An up-to-date filling station will be erected here for the Standard Oil Co. of Indiana.

* * *

Syracuse, N. Y.—The Texas Co. has applied for a permit to erect a 11,700 gallon storage tank on its property here.

* * *

Pittsfield, Mass.—A service station is being erected here for W. S. Farrar & Sons.

* * *

Callaway, Neb.—C. S. Carothers will build an up-to-date filling station here.

* * *

Hornell, N. Y.—A bulk and filling station is being built here by Flohr Bros.

Recovery Of Oil By Shafts And Galleries In France And Germany

By Charles Camsell
And
Arthur Buisson
Department Of Mines, Ottawa, Canada

THE recovery of petroleum by shafts and underground tunnels has not yet been attempted in Canada nor indeed on the American continent. The successful practice in Europe, however, of such methods upon oil fields apparently approaching exhaustion has suggested the possibility of their application to the Canadian petroleum fields of southern Ontario and to the recovery of oil from the bituminous sands of northern Alberta. The following descriptions of operations in Alsace, France, and in Hanover, Germany, may on this account prove of interest.

Alsace, France

Mining by open quarry methods in the Pechelbronn field dates back to 1735 and was followed by inclined galleries run into the hillside, but it was not until 1745 that the first regular mining operations were undertaken and two shafts were sunk to depths of 30 and 50 feet respectively.

The sand (*sable gras*) extracted, washed with boiling water, gave off a thick grease with a density of 0.965 to 0.975, which was termed *bitume* or *graisse d'asphalte.*

A second period of more intensive development, dates from 1786 to 1802, during which the average quantity of sand extracted was approximately 10 cubic metres per day. The *bitume* extraction was about 3½ per cent and the annual production of refined fats (*graisse raffinee*) about 100 tons per year. The shafts, during this period reached depths of from 100 to 150 feet.

From 1802 to 1865 the depths of the shafts ranged from 102 (34m.) to 216 feet (72m.) and sinking and timbering took from two to three months, when no serious flow of gas or water was encountered.

Mining operations consisted of driving a main gallery lengthwise through the deposit, or alongside it, with a series of transverse drifts to the edges of the deposit, robbing the pillars and subsequent filling with the clayey waste material. Much water was encountered during this period and this caused the temporary abandonment of the workings on several occasions.

In 1840, for the first time, methane gas or fire-damp (*grisou*) was noted and explosions occurred in the next few years, causing the death of five workmen. The Davy safety lamp was prescribed and strict regulations were issued to prevent further accidents.

The production from 1802 to 1866 averaged about 92 tons per year, and to obtain about 90 tons of *graisse d'asphalte,* it was necessary to drive 1200 metres of gallery, showing that a great amount of work was required for a relatively small production.

From 1865 to 1888, the shafts reached depths of from 200 to 300 feet.

Drilling up to the early sixties had been done principally to determine the limits of the deposits; although in 1858 and following years some deeper drilling had been resorted to. The borings showed the existence of lower strata of sands containing much lighter oil than that obtained previously. The new discovery determined the administration to sink shafts to explore these deposits and in them oozing or leakage oil (*huile de suintement*) was detected which had only been noticed accidentally previous to this exploration. This discovery resulted in a complete change in method of operation at the mines of Pechelbronn and within a few years no more sand was extracted from the workings, except that taken out in development work.

The lenticular deposits of sand were 16 to 19 metres wide and from 2.30 metres to 3.20 metres thick. They extended for a distance of 300 metres and were opened by means of two parallel galleries about 16 metres apart, with a slightly falling gradient as they advanced. These workings, rich in heavy oil, contained very little gas—a fortunate circumstance in a mine without ventilation or air-shaft. But from the small size of the workings, the production in oil was only from 0.5 to 0.6 tons per metre of advance.

In the period from 1886 to 1916 there was a change in the methods of operation. The heavy flow from the deep boreholes determined the abandoning of the underground works before a systematic plan of development had been applied to the deep deposits, and it was not until about thirty years later that underground operations were resumed. The abandonment was due probably to the belief by the company that the new deposits were of limited extent, like those previously mined, and to the fact that it did not possess the necessary equipment to carry on work of such a dangerous nature.

Present Conditions and Methods

The success of the attempt to resume operations in 1916 depended on three main factors, all of which were favorably determined; namely, the certainty that crude oil in paying quantities would be found in the deposits already drained by borings; the possibility of evacuating the gases; and the question of cost of production.

The Pechelbronn deposits are in the Oligocene and lie a short distance east of the Rhenan fault, which is one of the step-fractures associated with the caving of the *voussoir* of the plain of the Rhine. Tthe stratum in the greater part of the area covered by mining operations is lightly folded and has a regular dip of 5 degrees to 7 degrees to the southeast. The layers have been subject to faulting with an orientation usually parallel to that of the Vosges mountains.

The oil is in a series of sandy layers, from a few inches to a maximum of from 9 to 15 feet (3 to 5m.) thick. These layers extend to a depth of several hundred metres and fifteen have been worked. The sandy beds usually are fairly regular and persistent, and oil occurs at the same levels over a large area in the same section, although the sand may not be uniform in any one zone. It may be fine or coarse, pure or filled with clay, and in many places small islands of sand are enclosed in a layer of marl.

Mining Methods

Before deciding on a plan for drainage galleries, it is necessary to thoroughly explore the deposit by numerous borings which help also to determine the thickness of the deposits and possibly their capacity to locate sections where water has replaced the oil, and to define the productive and sterile zones; also to free the beds from gas sufficiently to permit the driving of galleries with greater safety.

The drainage gallery is driven, as far as possible, in the lowest part of the bed parallel with the footwall, and 7 to 15 inches above the marl, with a slightly upward slope to permit the easy flow of the oil.

A drainage channel is dug in the centre of the gallery right up to the working face. The channel is about one foot wide and three feet deep, and lined with wood with galvanized iron sheets in the lower section for the collection of the oil. By this means the oozing oil disappears almost immediately and leaves the floor of the gallery quite clean.

Occasionally smaller drains on each side of the gallery serve to collect the oil dripping from the roof and sides of the gallery. If a lower oil-bearing deposit is met while driving the drainage gallery a cross drift is driven downwards to the edge of the deposit and a small pump installed to raise the oil to the main channel.

Usually one gallery is sufficient to drain one bed, but a second gallery is always driven parallel to and above the

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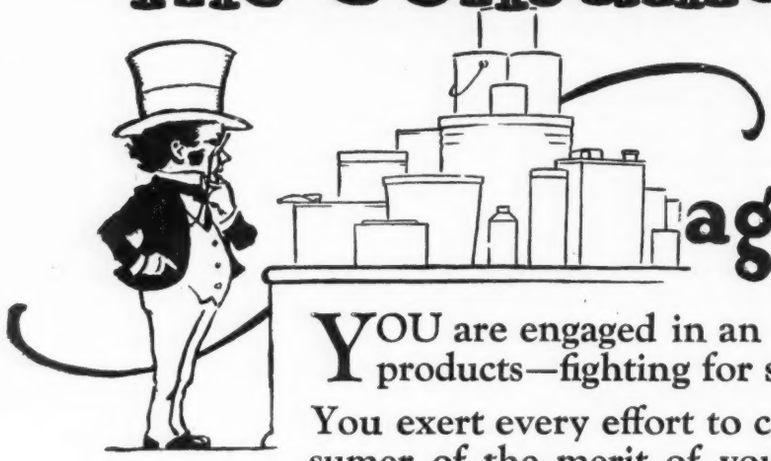

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main drainage gallery and at a distance from it of about 75 feet. The purpose of this supplementary gallery is to facilitate the escape of gases to offer greater security to the men in case of accident. The two galleries are connected together every 150 to 300 feet by transverse drifts, of which only the one nearest to the face is left open for circulation, the others being shut off by doors or filled in.

The supplementary gallery may also be used for drainage in certain cases, or it may be driven in sterile ground.

As the ground is not always regular and the sand bed is often very irregular in outline, it is often necessary to drive other subsidiary galleries and crosscuts in order to drain the whole deposit. Frequent bore-holes are driven in the sides and in the roof to permit the escape of gases from pockets that may have remained in the deposits and these holes also act as drains for the oil Borings are made also to tap sand beds that are too small to justify the expense of driving galleries.

It is found that the pillars between the transverse drifts exhaust themselves of oil except where some partition or wall has prevented the free flow of the oil. A small recovery of oil is obtained from the dump where the oil still attached to the sand drains off slowly and is recovered.

If the bed were perfectly regular and without folds and partitions there would be almost no limit to the area that could be drained by a gallery. Under fairly favourable conditions the effect of the drainage would extend to a minimum distance of 300 feet.

The mining methods employed are governed by the all-important question of safety. The danger of fire is a constant menace in a petroleum mine, and it is necessary at every step to foresee and prevent its occurrence. Explosives are completely debarred in all underground operations. Even the pick is a dangerous implement, and may cause a spark by striking a nodule of iron pyrite. Fortunately small hand hammer drills, operated by compressed air, can be used with safety. The type in general use at present is known as the hammer *Le Ligeois*. The bit penetrates without difficulty the soft sand and marl at a rate of about 3 feet per day with a face section of about 33 sq. ft. (3½ m²). As a further precaution horizontal holes about 7½ feet deep are driven into the face at the base to permit the escape of gas and water. These holes also serve to facilitate the flow of the oil.

The working squad consists of two miners and one helper each using a hammer drill. They work four 6-hour shifts per day. The compressed air used amounts to 1800 cu. meters per meter of advance.

As the galleries are usually only from 4½ to 6 feet in width by 6 feet in height not much timbering is necessary; except in a few places where the sand is loose and the roof and walls are lined with lagging.

To protect the workers at the face of the gallery from sudden earth falls a movable sheet iron roof resting on rails suspended from the sets by hooks is brought forward as the work proceeds.

To facilitate ventilation, the main galleries are a little larger than the others. All workings in the neighborhood of the shaft are walled in concrete or brick, or covered with iron sheets. At the working face only iron or steel sets are used with also iron sheets for the walls as a precaution against the spread of fire.

As the health and lives of the men depend on the condition and temperature of the air in the mine it is necessary to know the composition of the circulating gases. The following figures given in cubic centimeters per liter are an average: Methane 800; saturated hydrocarbons 160; olefin 5; carbonic acid 3; azote 30; oxygen 2; oxide of carbon, nil.

The ventilation of the mine galleries must provide that the air will not contain more than 0.2 per cent of hydrocarbon gases and daily samples are taken of the gas in the galleries and at the working faces. The ventilation system has been the subject of careful study. The air is forced down from the upper galleries to the lower workings.—a reversal of the procedure followed in coal mines, in order to prevent the heavy gases from collecting in the lower parts of the mine. Doors are placed to control at will the direction and volume of air. Air is brought to the working face by means of galvanized iron pipes with a diameter of from 11 to 22 inches, called *canars* which are connected with a section of the main gallery, preferably at the crossing of a ventilation gallery.

The temperature of the crude oil at the face of the drift, in the drain or from borings, varies very little and is the same winter and summer, namely 13 degrees to 15 degrees centigrade.

A test made in the mass of the sand at a depth of 6 feet gave a temperature of 22 degrees. Galleries without ventilation gave temperatures varying from 14 degrees to 27 degrees.

Temperature tests taken last January gave the following results: Surface atmosphere .3 degrees; atmosphere at the bottom of shaft No. 1, .3 degrees; and of shaft No. 4, .15 degrees; at the outlet of the ventilation .9 degrees.

It may be added that all power used underground is generated by compressed air and traction is by mules. Only electric hand lamps of the acid or alkaline accumulator system are permitted underground.

In petroleum mines it is not necessary to depend on lamps for the detection of a flow of gas, as hydrocarbon gases are easily detected by their odour and by the physiological troubles they cause.

Signals are exchanged from the surface and underground in the usual way, by the use of pull cords, acoustic tubes or telephones. If an accident occurs the signal is given by knocking with a hammer on the compressed air pipe line which radiates all over the mine and as no workings are at any great distance from the shaft the signal is easily carried to every section of the workings.

If an accident occurs the men gather in the galleries adjoining the haulage shaft or in the special safety shaft and shut off all communication with the workings by closing the iron doors.

If there is not time to reach these emergency galleries they retreat to special chambers built for the purpose, containing provisions and safety apparatus and connected with the surface by telephone. The chambers are ventilated by two tubes extending to the surface.

The shafts are sunk in the ordinary way and walled with re-inforced concrete. A shaft with a diameter of 4 meters can be sunk at the rate of from 20 to 30 meters per month.

The question of underground tramming and extraction is of no importance, as the quantities of oil handled are very small.

Production

The average recovery of oil is: by boring 16.7 per cent (44 lbs.); by drainage 43.3 per cent (124½ lbs.); by sand-washing (experimental only) 31.7 per cent (83½ lbs.); leaving 8.3 per cent (22 lbs.) as loss.

The oil production per metre of tunnel, in metric tons, has been as follows: 1867-1888, 4.20 tons; 1917-1921, 7.80 tons; 1922-1923, 11 tons.

The annual production of crude oil has been; 1812-1866, 4959 tons; 1867-1888, 14,427 tons; 1917-1921, 68,563 tons; at present, at the rate of about 100,000 tons per year.

The yield of the Alsace crude light oils of from 0.875 to 0.895 density by distillation, is about as follows: Essences 4 per cent; petroleum 23 per cent; intermediate oil 10 per cent; various lubricating oils 35 per cent; paraffin 2 per cent; residue, pitch and loss 22 per cent It is, therefore, a very asphaltic oil and poor in petroleum spirit.

Costs

The direct costs of underground operations are approximately proportional to the length of the gallery advance necessary to obtain one ton of oil, since all the main expenses, such as mining, timbering, tramming and extraction of the sand, are incurred in the advance of the gallery. But it is also important to increase the amount of oil recovered per metre of advance, and this may be obtained by a thorough study of the deposit previous to its exploitation, and by draining, when possible, several seams by means of one gallery.

The cost of production at Pechelbronn is divided approximately in the following proportions:

Amortization of original plant installation	10	per cent
Labour, (including general expenses), ...	55	do.
Supplies, (including general expenses), ...	6	do.
Power, (including general expenses), ...	15	do.
Shop Work, (including general expenses), ...	5	do.
Miscellaneous, (including general expenses), ...	9	do.

It will be noted that labour is the main item of expense.

At the present time the cost of extraction by means of seepage is about 30 per cent higher than by borings, but this difference will decrease, very rapidly, as

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improvements are being made in the methods of operation.

P. de Chambrier has made the following statement: "Deposits which have been abandoned after producing respectively 60,000. 80,000 and 120,000 tons of oil, would be capable of producing 2½ times more by drainage, namely, 150,000, 200,000 and 300,000 tons, and the cost of production for these would be respectively 306.67 frs. 137.50 frs., and 53.33 frs., per ton of oil."

Conclusions

Underground mining, by means of shafts and galleries is of very great industrial and economic interest, and, in addition affords an opportunity of making important observations about the deposits, and of estimating, more accurately than previously, the oil resources contained in the beds.

By this means it has been proved that the clay contents vary from 5 to 40 per cent; that the sands contain from 15 to 20 per cent of crude oil; that a gallery with a section of 5 cu. metres may produce on an average, 11 tons of crude oil per linear foot of advance; that the saturated sands contain usually from 12.5 to 13 per cent oil in weight, although this percentage may drop to as low as 5 per cent in poor ground; that the drained sands contain from 3 to 8 per cent of oil and on an average about 4.8 per cent.

The working conditions for the men are quite satisfactory. The mine is clean and the temperature medium and fairly uniform, throughout the year. The men are not very much soiled with the oil and they wear oil-cloth overalls. They work only six hours per day and the output has increased since the change from eight-hour to six-hour shift. The oil is easily worked off the skin by the use of naptha oil and change-rooms equipped with showers are available for the men.

The mining methods applied to the Pechelbronn deposits are relatively recent and no doubt many improvements will be worked out as the administration learns more about the unusual conditions under which they have to operate.

The recovery has been increasing rapidly and improvements which are being made in the methods of operating are gradually bringing down the cost per unit.

Whether or not this method of operation can be applied to Canadian or American oil beds is a question that could be answered only after serious investigation, but it deserves consideration as the day will come when we shall be faced with the problem of finding new supplies of fuel.

Hanover, Germany

The methods employed in recovering oil at Pechelbronn, Alsace, by shaft and galleries are used also at Wietze, Germany, about 40 kilometres northeast of Hanover.

The Wietze field is one in which about 1500 wells have been drilled and oil produced from them by pumping. The field is under the control of the Deutsche Erdol company of Martin Luther Strasse, Berlin, the same company which was responsible for the introduction of the present methods of mining oil at Pechel-

bronn, in Alsace, when that field was in German territory before the close of the war.

The rocks here consist of Tertiary sands and clays thinly overlaid by glacial material and resting uncomformably on rocks of Mesozoic age. Through these has been thrust a core of rock salt and it is about the border of the salt core that oil has become concentrated in the Tertiary beds. The Tertiary beds lie fairly flat but the older beds are more steeply inclined and all of them are considerably disturbed by faulting.

Oil production from wells in this field began 50 years ago and gradually increased until it reached a maximum in 1908 with a production of 110,536 tons Since that time well production has steadily declined. In order to increase production it was decided to apply the shaft and gallery method of Pechelbronn and the sinking of a shaft was commenced in 1917. Owing to the unconsolidated nature of the beds considerable difficulty was encountered in sinking the shaft and the method of freezing the ground had to be resorted to. The total depth of the shaft, which is steel lined, is 250 metres and the first oil was produced from it in 1920. The production in September 1923 was about 850 tons a month.

In a depth of 250 metres the shaft cuts four beds of oil sands having a total thickness of about 50 metres. Two only of these are worked by a system of galleries at 220 metres and 250 metres.

The method of working is in general similar to that applied at Pechelbronn and whatever differences exist they are due to differences in the physical character of the sands. Galleries are driven at a rate of about 2 metres a day and these are lagged with timber and in particularly soft places are cemented, or bricked. A central drainage trough is not used, but instead wooden troughs are hung at the bottom of each wall of the galleries and these carry the oil to the pumping stations. At one point a winze 40 feet deep had been sunk in a thick oil sand and used as a collecting basin.

The Wietze oil is a heavy black liquid with a specific gravity of .94 and containing only about 1 per cent of benzine The underground workings are consequently fairly free of gas and no dangerous explosions are said to have occurred.

The oil sands are very soft and have a saturation of 42 per cent oil. Of the total oil 25 per cent is said to be recovered from the wells. 61 per cent is obtained from the shafts and galleries and it was proposed to recover the remaining 14 per cent by mining the drained sands and washing with hot water. The washing method was not yet being applied at the time of our visit but all the experimental work had been done and a washing plant was being erected. By the washing methods the sands are placed in tanks and mixed with water having a temperature of 80 degrees Centigrade and the mixture agitated with rotating paddles. The result is a clear separation of oil from the sand grains.

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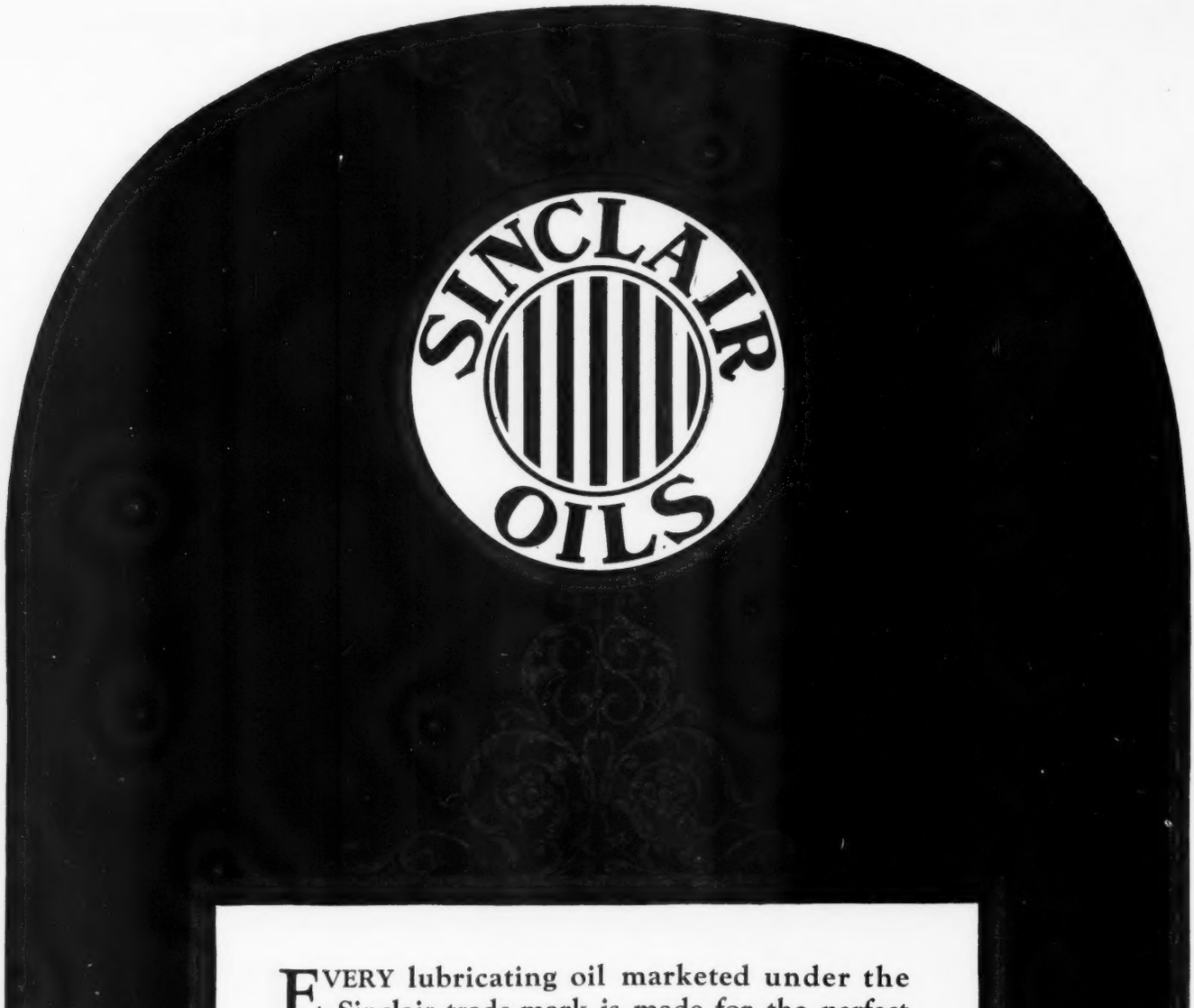

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REFINERY-TANK WAGON MARKETS

Mid-Continent Gasoline Stronger After Huge Navy Purchase

Staff Special

TULSA, May 17

AFTER floundering in the doldrums for two months waiting impatiently for spring to arrive Mid-Continent gasoline markets have finally begun to take on an aspect of genuine improvement. Navy gasoline is actually selling at higher prices today than it was at the beginning of the week.

Unexpected impetus was given the market last Tuesday afternoon when, out of a clear sky, the Carter Oil Co. purchased 10,000,000 gallons of new Navy within three or four hours. The gasoline was bought from more than 20 refineries scattered through Oklahoma, Kansas and north Texas. It is to move during the next 30 days to Baton Rouge for the account of the Standard Oil Co. of Louisiana.

No announcement was made regarding the price paid by the Standard Oil Co. of New Jersey through its Oklahoma subsidiary, the Carter. It is generally understood that the motor fuel brought 9½ and 9⅝ cents a gallon, depending on freight rates from the refinery to Baton Rouge. It is probable that part of the gasoline could have been bought at 9¼ cents a gallon and the remainder at slightly higher prices, since some Navy was selling at that price Tuesday when the Standard entered the market. By paying a flat price, however, the purchase was cleaned up by closing time Tuesday on an order which reached Tulsa at noon.

Order Is a Windfall

Thus on one purchase Mid-Continent refiners were paid roundly a million dollars in cash and were able to ship out between 1250 and 1500 cars of gasoline without scouring the consuming territory and bidding against each other to pry orders away from relucant jobbers looking for lower prices. The order was a windfall which has done more than any other single thing to steady a market which appeared to be headed in the same direction it had started a year ago.

On the day following the Carter purchase there was still a little gasoline available for resale at 9½ cents per gallon. All of the 9¼ cent goods had disappeared. The material available at 9½ cents was mostly untreated and could not have been applied on the bulk purchase. Since then the market has gradually strengthened until today the universal quotation to the trade is 10 cents.

Aside from the huge purchase mentioned there have been other factors which have aided in the market. Jobbers who have been holding out instructions on contract gasoline for May delivery have been furnishing their refiner connections with more instructions during the past few days. One refiner mentioned today that he received five instructions from one jobber, the entire contract amount. Expecting a tank wagon reduction the jobber had held off as long as he could before ordering out his contract requirements. The instance is typical of what has been taking place during the past few days.

Spot business has been on the increase too. Brokers who were caught short by the unexpected upturn have been scurrying to cover, taking their losses of around ¼ cent or more a gallon with as good grace as possible.

Must Work Down Stocks

Experienced observers of the market are pointing out vigorously that a single large purchase, while helpful, is not enough to pull the Mid-Continent situation out of the fire. It is imperative, they point out, that inventories be worked down so that the Independent group with its limited finances will not be forced to enter the dull season next winter with a large carry-over of stocks of finished goods.

If operations are carried on during the remainder of the summer at a reasonably low rate and gasoline stocks in Oklahoma and Kansas are cut down below 90 or 100 million gallons there is no reason why prices should not be kept on a reasonable plane. On the contrary, if runs are not reduced further or are pushed up higher it is quite possible that distress gasoline wil make its appearance on the market again at a time when no large company might find it convenient to save the situation with another big order.

One refiner in Oklahoma pointed out today that stocks of gasoline in Louisiana were larger by approximately 70,000,000 gallons at the end of March this year than they were at the same time in 1923. He is of the opinion that New Orleans refiners will be a factor in the competitive situation in midsummer as they were a year ago, that they will seek to lower their inventories by pushing their gasoline up the Mississippi and Ohio valleys.

"Let George Do it"

There have been numerous rumors in the market since the large Navy purchase that one or more exporters were about to enter the market and lift a cargo or two of 64 gasoline. One refiner is known to have been offered a low price for around 25 cars of 64-66, 375 end point material. The exporter maintained that he has no immediate need of the material and was offering the low price on a gamble and to aid the refinery. One other exporting house has inquired around the field seeking information on the quantity of 64 available and the price at which it can be had. He has not gone so far as taking options on the goods and no definite hope of immediate trading is held out.

It is estimated that there are roundly 600 to 800 cars of 64.66 gasoline of export quality in the tanks of Mid-Continent refiners. This material was manufactured while exporters were still buying earlier in the year and has been held since then. Sale of this material would aid the market materially. Refiners do not wish to blend it down with naptha to a domestic competitive grade if there is any possibility of moving it into overseas channels.

(Continued on the next page)

Attention: Diogenes!

"Please hold up further shipments of gasoline on our contract until May 25. We anticipate reduction in tank wagon price. If price should be reduced before the 25th you may ship immediately."

The foregoing wire was received by a Mid-Continent refiner last week from one of his jobber customers who is under marginal contract. It is quite a change from the usual wire of the jobber who is holding off shipments from his refiner while waiting for the price to be cut.

Another refiner with offices outside of Tulsa was in the city with a broad grin on his face. Asked the reason for his sunny disposition he told the following:

"Just before I left home I received a wire from one of our large jobber connections asking us to hold up shipments because all of his tanks were full. When I got to Tulsa I met a buying representative of the same company.

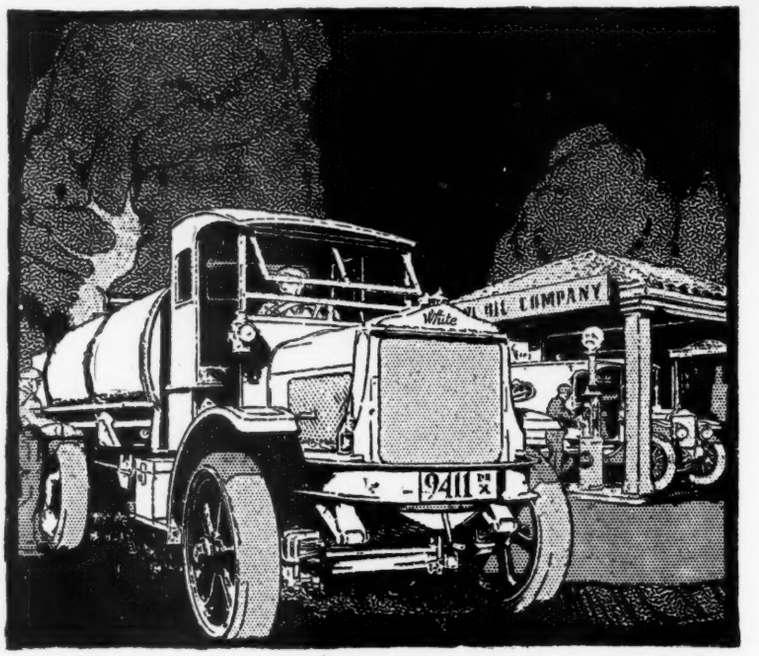
"The buyer told me he was glad to see me. 'Our tanks are empty at ..... and we need some gasoline immediately. Can you ship a few cars today?' the buyer urged.

"I did," the refiner said with an even broader grin.

Oil Companies Operating 10 or More White Trucks

American Petroleum Co.	29
Anglo-Mexican Petroleum Co., Ltd.	11
Atlantic Refining Company	507
*Barnsdall Corporation	22
Brooks Oil Company	12
Buckeye Pipe Line Company	23
California Petroleum Company	18
Canfield Oil Company	22
Carter Oil Company	24
*Cities Service Company	82
Cities Service Oil Company	22
Comar Oil Company	21
Commercial Oil Company	10
Continental Oil Company	106
Empire Gas & Fuel Company	57
Freedom Oil Works	19
Galena Signal Oil Company	13
General Petroleum Company	78
Gerkins Oil Company	10
Great Southern Refining Co.	11
Gulf Production Company	33
*Gulf Refining Company	1441
Gypsy Oil Company	28
Huasteca Petroleum Company	24
Humble Oil & Refining Co.	92
Imperial Oil, Ltd.	93
Indian Territory Illuminating Oil Co.	10
International Petroleum Co., Ltd.	25
Julian Petroleum Corporation	17
Lilly White Gasoline Co.	10
Magnolia Petroleum Company	67
Marland Refining Company	39
Mexican Gulf Oil Company	25
Mid-Kansas Oil & Gas Co.	16
Midwest Refining Company	24
Mutual Oil Company	20
National Oil Company	23
National Refining Company	82
Ohio Oil Company	32
Ozark Pipe Line Company	14
Pacific Oil Company	17
Pan American Petroleum Co.	12
*Pan American Petroleum & Transport Co.	13
Petroleum Heat & Power Co.	12
Phillips Petroleum Co.	12
Pierce Oil Corporation	187
Prairie Oil & Gas Co.	64
Prairie Pipe Line Company	67
Pure Oil Company	50
Reed Oil Corporation	10
Richfield Oil Company	14
Rio Grande Oil Company	33
*Roxana Petroleum Corporation	288
Shaffer Oil & Refining Co.	47
Shell Oil Co. of California	178
Skelley Oil Company	21
Southern Oil Corporation	16
Standard Oil Co., of Brazil	10
Standard Oil Co., of California	252
Standard Oil Co., of Indiana	206
Standard Oil Co., of Kentucky	452
Standard Oil Co., of Louisiana	188
Standard Oil Co., of Nebraska	29
*Standard Oil Co., of New Jersey	172
Standard Oil Co., of New York	799
Standard Oil Co., of Ohio	212
Standard Oil Co., of Turkey	13
Stoll Oil Refining Company	14
Sun Company	29
The Sun Oil Company	18
The Texas Company	182
The Texas Oil Company	13
Tidal Oil Company	13
*Tide Water Oil Company	36
Tide Water Oil Sales Corporation	10
Transcontinental Oil Company	38
Union Oil Co., of California	712
Vacuum Oil Company	11
West India Oil Company	22
The Wilshire Oil Company	16
The Winona Oil Company	11
Wofford Oil Company	15
Total	7,762

*Exclusive of subsidiary or affiliated companies individually listed.



82 Oil Companies Operate 7,762 White Trucks In Fleets of 10 or More

The predominance of White Trucks in the service of the oil industry is nation wide.

No more impressive evidence of satisfaction with White Truck performance in the oil industry can be offered than the accompanying list of 82 of the Country's foremost oil companies operating 7,762 Whites in fleets of 10 or more. Fifteen oil companies operate fleets of more than 100 White Trucks each. One company operates more than 1400 Whites. Hundreds of other White Trucks serve the oil industry in fleets of less than 10.

These owners know truck value. Their judgment is your own best guide in spending your transportation dollar.

No other truck manufacturer has ever published such a record.

THE WHITE COMPANY
CLEVELAND

WHITE TRUCKS

The export market appears to have become sluggish along with domestic markets. Foreign factors appear to sense softness in the American petroleum industry almost as soon as those in complete daily contact with developments. February and March overseas shipments were large and some time must elapse before foreign purchasers are forced to buy again.

Natural gasoline has not begun to react as yet to the firmer tone in the straight run market. Refiners do not feel themselves out of the woods and are not inclined to stock up on blending material.

Stocks of natural gasoline are heavy on the hands of some of the small manufacturers. As a result they have been bombarding refiners with offers, making substantial concessions to get orders. Oklahoma refiners have bought some Grade B this week at 7½ cents a gallon.

Blended gasolines are selling at 9¼ to 9½ cents a gallon in a sluggish manner.

Kerosene continues active and reasonably strong at quotations which have been prevalent for several weeks. Jobbers are apparently finding the farmer trade stocking up for the summer in good shape, judging from repeat orders which are reaching refiners. The supply of 42-44 kerosene is becoming more limited every year as refiners improve their manufacturing methods to wring out light fractions from the burning oils for inclusion in the gasoline cut.

Some factors in the field are of the opinion that 41-43 kerosene is slightly more plentiful today than it has been earlier in the month. If that is true the surplus has not been sufficient to warrant any concessions in price below 4½ to 4½ cents per gallon. Stocks of kerosene at Mid-Continent plants were reduced slightly during the week ended May 10, as has been the case every week for a month or more.

Non-Viscous Lubes

Refiners of lubricating oils without cracking processes continue offering the non-viscous neutrals at prices around 5 cents per gallon. Those with pressure equipment are saving the extra finishing on this light stock by cracking it. Their prices are 1 or 2 cents higher. On the viscous neutrals, both red and pale, there is a wide variation in quotations. Some refiners have list prices from ½ to 1½ cents below others. Refiners generally agree that motor oils and unblended neutrals are moving more

(Continued on Page 114)

Mid-Continent Refinery Operations Week Ended May 10

TULSA, May 17.—Mid-Continent refiners reporting to the Western Petroleum Refiners Association reduced their runs of crude and partly refined oils 2335 barrels per day during the week ending May 10 to a daily average of 240,494 barrels. The report covers activities of 138 plants in the Mid-Continent proper with a total still capacity of 481,450 barrels indicating that the field was running at 50 per cent of its rated capacity. Earlier in the year the field was running at approximately 56 per cent capacity, former reports show.

In the current report H. K. Davis, statistician of the refiners association, has segregated Gulf Coastal refineries in both Louisiana and Texas from the inland plants. A special report is made on activities of six seaboard plants with a daily capacity of 54,050 barrels.

Kansas refiners reduced their runs nearly 1000 barrels per day to 46,504 barrels at 26 plants. In Oklahoma the 62 reporting plants increased their runs roundly 1500 barrels per day to 135,758 barrels in spite of the fact that three plants shut down. The 40 north and central Texas refiners further reduced their runs 3500 barrels per day to 44,398 barrels. Louisiana and Arkansas inland plants increased their runs roundly 500 barrels per day to 13,834 barrels.

Production of gasoline in the Mid-Continent was virtually unchanged during the week ending May 10, being 24,353,238 gallons. Shipments, however, declined 4.57 per cent during the week to 23,864,260 gallons as compared with 25,006,323 gallons during the week ending May 3.

Compared with the corresponding week a month ago shipments are much improved. During the week ending April 12, the entire group of refiners, including Gulf Coast plants shipped 19,271,063 gallons of gasoline or 73.8 per cent of the production. For the week ending May 10 all plants except those on the coast shipped 23,864,260 gallons or 98 per cent of the production. In addition Gulf Coast plants shipped 1,406,530 gallons of gasoline. It will thus be seen that in the second week of May all reporting plants shipped 6,000,000 gallons of gasoline more than in the second week in April.

Shipments of kerosene declined 8.1 per cent at all plants to 5,711,608 gallons while production fell 3.2 per cent to 5,579,007 gallons. Stocks were reduced a little over 100,000 gallons to 17,218,385 gallons which is the low point for the year.

Shipments of gas and fuel oils represented 97.2 per cent of production for the week. Stocks on May 10 were increased less than a million gallons to 95,040,602 gallons. Kansas and Texas refiners reduced their stocks while Oklahoma plants increased nearly 2,000,000 gallons.

Week Ending	Texas- La. May 3	Gulf Coast May 10
No. plants	6	6
Capacity	54,050	54,050
Daily Average Crude and Rerun Still Charges	66,040	61,209
Production		
Gasoline	1,632,572	2,198,575
Kerosene	255,202	298,243
Gas and Fuel	9,593,503	6,195,976
Shipments		
Gasoline	1,455,483	1,406,530
Kerosene	392,607	38,942
Gas and Fuel	10,965,311	8,690,196
Stocks Close of Week		
Gasoline	44,931,592	45,723,637
Kerosene	5,308,415	5,567,716
Gas and Fuel	35,208,624	32,714,404

Summary Western Petroleum Refiners' Ass'n Report, Week Ending May 10, 1924

	KANSAS	%Change over previous Week	OKLAHOMA	%Change over previous Week	TEXAS	%Change over previous Week	LA.-ARK.	%Change over previous Week	TOTAL May 10	%Change over previous Week	TOTAL April 12
Plants Reporting	26		62		40		10		138		143
Capacity (Bbls.)	86,600		265,700		104,550		25,000		481,850		535,400
Daily average charge to Stills, Week, 5-3	47,300		134,276		47,914		13,339		242,829		
Daily average charge to Stills, Week, 5-10	46,504	— 1.68	135,758	+ 1.10	44,398	— 7.34	13,834	+ 3.70	240,494	—0.96	312,669
GASOLINE (Gals.)											
Stocks, 5-3	17,927,916		109,565,819		16,372,132		1,907,641		145,773,508		179,000,876
Prod., 5-3 to 5-10	4,778,643	— 2.95	14,386,938	+ 5.25	4,249,128	—12.25	938,529	+ 4.58	24,353,238	+0.08	26,127,835
Sales, 5-3 to 5-10	4,174,933	+ 3.22	14,021,196	— 2.39	4,940,995	—14.63	727,136	— 10.20	23,864,260	—4.57	19,271,063
Stocks, 5-10	18,531,626	+ 3.37	109,931,561	+ 0.33	15,680,255	— 4.23	2,119,034	+ 11.08	146,262,486	+0.34	185,857,648
Ratio Sales to Production	87.4%		97.5%		116.3%		77.5%		98.0%		73.8%
KEROSENE (Gals.)											
Stocks, 5-3	1,994,468		10,575,174		4,700,615		80,729		17,350,986		5,593,496
Prod., 5-3 to 5-10	1,578,825	+ 7.22	2,801,555	— 7.51	894,541	— 8.57	304,086	+ 5.27	5,579,007	—3.29	5,521,665
Sales, 5-3 to 5-10	1,526,073	+28.48	2,937,632	—17.49	1,031,445	—12.86	216,458	— 23.85	5,711,608	— 8.11	6,137,697
Stocks, 5-10	2,047,220	+ 2.64	10,439,097	— 1.29	4,503,711	— 2.91	168,357	+108.55	17,218,385	—0.76	24,977,464
Ratio Sales to Production	96.7%		104.9%		115.3%		71.2%		102.4%		111.2%
GAS AND FUEL OIL (Gals.)											
Stocks, 5-3	9,720,123		61,959,545		20,485,666		2,048,049		94,213,383		114,891,969
Prod., 5-3 to 5-10	5,875,846	+ 3.05	16,508,557	+ 7.90	5,911,263	—18.17	1,778,701	+ 4.98	30,074,367	+0.52	42,060,926
Sales, 5-3 to 5-10	6,272,625	+21.54	14,681,008	+10.29	7,167,362	—12.80	1,126,153	+ 0.12	29,247,148	+5.15	32,657,134
Stocks, 5-10	9,323,344	— 4.08	63,787,094	+ 2.95	19,229,567	— 6.13	2,700,597	+ 31.86	95,040,602	+0.88	124,295,761
Ratio Sales to Production	106.8%		88.9%		121.2%		63.3%		97.2%		77.6%

DRAINS LIKE A FUNNEL

WELDCO TRUCK TANKS

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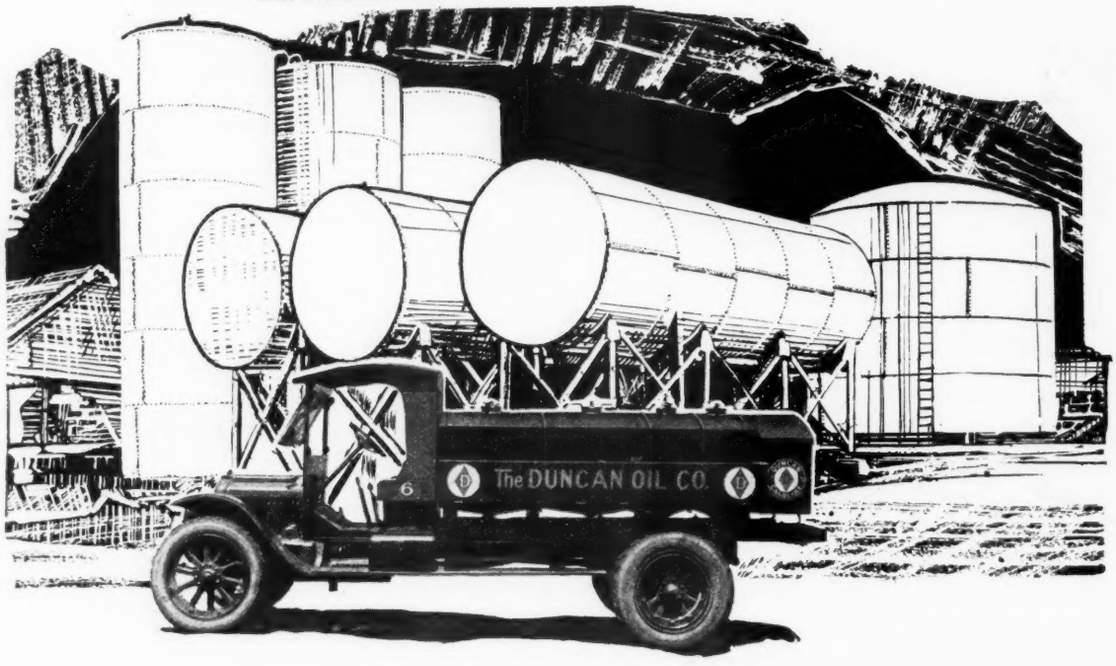

The Last Thing To Consider—The Price

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Bought on this basis Weldco Truck Tanks will earn your confidence and orders as they have earned the confidence and business of hundreds of oil marketers in all parts of the country. For Weldcos will be going about their daily routine giving the same exacting service long after these other tanks are consigned to scrap yards. It is this extra service that you will want to place on your equipment inventory.

Write for free booklet, "What To Consider When Buying A Truck Tank."

The Youngstown Welding Company

530 Rayen Ave. Youngstown, Ohio

Welders Since 1912

Tank Wagon, Service Station Markets
Gasoline and Kerosene

BELOW are given in cents a gallon, the tank wagon price of gasoline without the special taxes levied against motor fuels by many states, the amount of the state taxes, the total tank wagon price, with tax added in and the service station or retail price of gasoline as quoted in the various Standard Oil marketing territories. The right hand column is the tank wagon price of kerosene. By tank wagon price is meant the price to resale agents or dealers. Usually this price does not apply to sales to consumers from tankwagons.

Prices in effect May 19

S. O. NEW JERSEY TERRITORY

	Gasoline			Oil	
	T.W.	Tax	Total	S.S.	T.W.
Atlantic City, N.J.	19.5	0	19.5	*	14
Newark, N. J.	19.5	0	19.5	*	14
Annapolis, Md.	19	2	21	*	13.5
Baltimore, Md.	19	2	21	24	13.5
Cumberland, Md.	19	2	21	24	13.5
Washington, D.C.	19	0	19	21	13.5
Danville, Va.	19	3	22	*	14.5
Norfolk, Va.	19	3	22	24	14
Richmond, Va.	19	3	22	25	14.5
Roanoke, Va.	19	3	22	24	14.5
Petersburg, Va.	19	3	22	*	14.5
Charleston, W.Va.	19	2	21	24	14.5
Clarksburg, W. Va.	19	2	21	*	14.5
Keyser, W.Va.	19	2	21	*	14.5
Parkersburg, W.Va.	19	2	21	23	13
Wheeling, W.Va.	19	2	21	24	14.5
Williamson, W.Va.	19	2	21	*	14.5
Charlotte, N.C.	19	3	22	25	14.5
Hickory, N.C.	19	3	22	*	14.5
High Point, N.C.	19	3	22	*	14.5
Mt. Airy, N.C.	19	3	22	*	14.5
Salisbury, N.C.	19	3	22	*	14.5
Charleston, S.C.	19	3	22	25	13.5
Columbia, S.C.	19	3	22	24	14.5

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK TERRITORY

*New York City	20	0	20	22.5	14
Albany, N. Y.	20	0	20	22.5	14
Buffalo, N. Y.	18.5	0	18.5	21.5	14
Rochester, N.Y.	17	0	17	21	13
Syracuse, N.Y.	19.5	0	19.5	22	12
Boston, Mass.	20	0	20	22.5	12
Augusta, Me.	20	1	21	23.5	14
Manchester, N.H.	20	2	22	24.5	14
Burlington, Vt.	20	1	21	23.5	14

*In steel barrels.

ATLANTIC REFINING TERRITORY

Pittsburgh, Pa.	20	0	20	25*	14
Philadelphia, Pa.	20	0	20	25*	14
Allentown, Pa.	20	0	20	25*	14
Scranton, Pa.	20	0	20	25*	14
Altoona, Pa.	20	0	20	25*	14
Dover, Del.	20	2	22	25	14
Wilmington, Del.	20	2	22	25	14
Providence, R. I.	20	0	20	23	14
Springfield, Mass.	20	0	20	23	14
Worcester, Mass.	20	0	20	23	14
Hartford, Conn.	20	1	21	24	14
New Haven, Conn.	20	1	21	24	14
Boston, Mass.	20	0	20	23	14

*Contains 2-cent tax collected by retail dealer and paid by him directly to state.

S. O. OHIO TERRITORY

All Ohio points	20	0	20	22	15

S. O. KENTUCKY TERRITORY

Lexington, Ky.	20	1	21	23	15
Louisville, Ky.	19	1	20	22	14
Covington, Ky.	20	1	21	23	15
Clarksdale, Miss.	19	3	22	24	14
Jackson, Miss.	19	3	22	24	11
Natchez, Miss.	18.5	3	21.5	23.5	13.5
Vicksburg, Miss.	18.5	3	21.5	23.5	13.5
Birmingham, Ala.	20	2	22	24	15.5
Mobile, Ala.	19	2	21	23	13.5
Montgomery, Ala*	21	2	23	25	16.5
Atlanta, Ga.	19	3	22	26	14
Augusta, Ga.	21	3	24	26	14.5
Macon, Ga.	21	3	24	26	15.5
Savannah, Ga.	19	3	22	24	14
Jacksonville, Fla.	19	3	22	24	14
Miami, Fla.	21	3	24	26	15.5
Tampa, Fla.	19	3	22	24	14
Pensacola, Fla.	19	3	22	24	14.5

*Local privilege Tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

S. O. CALIFORNIA TERRITORY

Phoenix, Ariz.	20	3	23	26	21.5
Los Angeles, Cal.	14	2	16	19	15.5
Fresno, Cal.	15.5	2	17.5	20.5	17.5
San Francisco, Cal.	15	2	17	20	15.5
Reno, Nev.	18.5	2	20.5	23.5	19
Portland, Ore.	16	3	19	22	16.5
Seattle, Wash.	16	2	18	21	16.5
Spokane, Wash.	20	2	22	25	20.5
Tacoma, Wash.	16	2	18	21	16.5

S. O. LOUISIANA TERRITORY

	Gasoline			Oil	
	T.W.	Tax	Total	S.S.	T.W.
Camden, Ark.	17	4	21	23	13
Little Rock, Ark.	17	4	21	23	13
West Helena, Ark.	17	4	21	23	13
Alexandria, La.	17.5	1	18.5	21.5	13
Baton Rouge, La.	16	1	17	20	11.5
Lake Charles, La.	17.5	1	18.5	21.5	13
New Orleans, La.	16.5	1	17.5	20.5	9
Shreveport, La.	17.5	1	18.5	21.5	13
Bristol, Tenn.	20	2	22	24	15.5
Chattanooga, Tenn.	18.5	2	20.5	22.5	14.5
Knoxville, Tenn.	19.5	2	21.5	23.5	15
Nasvhille, Tenn.	17.5	2	19.5	20.5	13.5
Memphis, Tenn.	16	2	18	20	14

MAGNOLIA PETROLEUM TERRITORY

Muskogee, Okla.	18	2½	20.5	23.5	12
Oklahoma City.	16	2½	18.5	23.5	11
Tulsa, Okla.	18	2½	20.5	23.5	11
Fort Smith, Ark.	16	4	20	24	12
Little Rock, Ark.	18	4	22	25	13
Texarkana, Ark.	17	4	21	24	13
Dallas, Tex.	15	1	16	20	10
El Paso, Tex.	17	1	18	22	13
Fort Worth, Tex.	15	1	16	20	11
Houston, Tex.	16	1	17	21	12
San Antonio, Tex.	15	1	16	18	10

S. O. INDIANA TERRITORY

Chicago, Ill†	18	0	18	20	12
Decatur, Ill.	18.2	0	18.2	20.2	12.5
East St. Louis, Ill.	17.1	0	17.1	19.35	11.6
Joliet, Ill.	18.4	0	18.4	20.4	12.7
Peoria, Ill.	18.2	0	18.2	20.2	12.5
Quincy, Ill.	18.2	0	18.2	20.2	12.3
Evansville, Ind.	18	2	20	22	12.5
Indianapolis, Ind.	18.2	2	20.2	22.2	12.7
South Bend, Ind.	18.4	2	20.4	22.4	12.9
Detroit, Mich.	18.8	0	18.8	20.8	13.2
Grand Rapids, Mich.	18.7	0	18.7	20.7	13.1
Saginaw, Mich.	18.9	0	18.9	20.9	13.3
La Crosse, Wis.	19.2	0	19.2	21.2	13.4
Madison, Wis.	18.3	0	18.3	20.3	12.5
Milwaukee, Wis.	18.1	0	18.1	20.1	12.2
Duluth, Minn.	19.2	0	19.2	21.2	13.6
Mankato, Minn.	18.8	0	18.8	20.8	13.4
Minneapolis, Minn.	18.9	0	18.9	20.9	13.6
Davenport, Ia.	18.5	0	18.5	20.5	12.9
Des Moines, Ia.	18.5	0	18.5	20.5	12.9
Sioux City, Ia.	18.1	0	18.1	20.1	12.5
Kansas City, Mo*	17.9	1	18.9	20.9	11.3
St. Joseph, Mo*	17.8	½	18.3	20.3	12.2
St. Louis, Mo*	17.1	½	17.6	19.9	12
Fargo, N. D.	19.6	1	20.6	22.6	15.6
Grand Forks, N.D.	20.2	1	22.2	24.2	15.9
Minot, N. D.	20.9	1	21.9	23.9	15.6
Huron, S. D.	20	2	22	24	14.1
Pierre, S. D.	20	2	22	24	14.1
Wichita, Kan.	17.8	0	17.8	19.8	11.8
Bartlesville, Okla.	16.9	2½	19.4	21.4	10.9

*Taxes levied by cities.

†Base tank wagon price; large dumps on sliding scale, see schedule in column to right.

S. O. NEBRASKA TERRITORY

Crawford, Neb.	19	0	19	*	13.25
Omaha, Neb.	18.25	0	18.25	20.25	12.5
McCook	19.75	0	19.75	21.75	14
Norfolk	18.75	0	18.75	20.75	13
North Platte	19.75	0	19.75	21.75	13.75
Scotts Bluff	19.25	0	19.25	21.25	13.25

*Standard has no service station here.

CONTINENTAL OIL TERRITORY

Denver, Colo.	19	2	21	23	14.5
Glenwood Sp'gs. Colo	23	2	25	*	18.5
Pueblo, Colo.	19	2	21	23	14.5
Basin, Wyo.	21	1	22	*	15
Casper, Wyo.	19	1	20	22	13
Cheyenne, Wyo.	20.5	1	21.5	23.5	15
Cody, Wyo.	22	1	23	*	16
Lander, Wyo.	21	1	22	*	15
Sheridan, Wyo.	23	1	24	26	17
Billings, Mont.	21.5	2	23.5	25.5	16.5
Butte, Mont.	23	2	25	27	17
Great Falls, Mont.	23	2	25	27	18
Helena, Mont.	23	2	25	27	18
Miles City, Mont.	22.5	2	24.5	26.5	17.5
Missoula, Mont.	24	2	26	28	19
Ogden, Utah	21.5	2½	24	26	17.5
Salt Lake City, Utah	21.5	2½	24	26	17.5
Boise, Ida.	22.5	2	24.5	26.5	20
Idaho Falls, Ida.	23	2	25	27	19.5
Albuquerque, N.M.	23	1	24	26	17.5

*Continental has no service stations at these points.

Week's Price Changes Tank Wagon Market

DALLAS, May 17.—Distributing conditions in Fort Worth have been in a disturbed condition for several weeks due to the low prices at which jobbers have been able to buy their gasoline. At the present time gasoline is being sold to the public at prices ranging from 16 to 20 cents per gallon. The Gulf Refining Co. has a service station price of 19 cents per gallon which other companies have not met.

The tank wagon price at Fort Worth and Dallas has been 17 cents per gallon including tax of 1 cent since March 6, being carried at 18 cents in this publication due to a telegraphic error.

* * *

On May 17, both tank wagon and service station prices of gasoline were reduced 1 cent at Fort Worth and Dallas, bringing the tank wagon to 16 and service station to 20 cents at both points. On the same date, kerosene was reduced 1 cent at Fort Smith to 12 cents.

* * *

NEW YORK, May 19.—The 1 cent reduction on kerosene on May 13 in the Standard Oil Co. of New York territory was effective at New York City, Buffalo and Burlington, Vt., which brought the price at those points to a 14 cent level. Other points where kerosene was 14 cents or below, were unchanged.

* * *

NEW YORK, May 19.—Gasoline price at Standard Oil Co. of New York pumps at Boston is 22.5 cents instead of 23 as has been published in the past few issues.

* * *

Chicago Tank Wagon Scale

Following is the schedule of gasoline tank wagon prices of Standard Oil Co. of Indiana for deliveries in Chicago and suburbs of Chicago in Illinois.

Size of Dump	Price
1 to 99 gallons	18c
100 to 249 gallons	16
250 to 499 gallons	15.50
500 gallons or more	15.25

Tax Nets State $1,697,000

HARRISBURG, PA., May 17.—Pennsylvania's tax of 2 cents a gallon on gasoline has netted the state approximately $1,697,000 in the first quarter of 1924, State Treasurer Snyder has announced.

Mex Pet. Closes Chicago Office

CHICAGO, May 16.—The Mexican Petroleum Co., of New Orleans, recently closed its Chicago marketing office, after about a year in the Peoples Gas building. Local sales representatives have been recalled to New Orleans.

TULSA, May 17—The Western Petroleum Refiners Association has filed exceptions to the proposed report of Examiner Myron Witters of the Interstate Commerce Commission in the case brought by the Piedmont Oil Co. attacking rates from Fort Worth to Gastonia, N. C.

Refinery Markets On Light Oil Products

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas

GASOLINE AND NAPTHA

PENNSYLVANIA	Prices May 19	Prices May 12	Prices May 5
52 Naptha	-12½	12½-12¾	12¾-13
54 Naptha	12½-13	12¾-13	13 -13½
58 Gasoline	13 -13¼	12¾-13	13¼-13½
60 Straight-run gasoline	13½-14	13¾-14¼	14 -14½
62 Straight-run gasoline	14 -14½	14¼-14¾	14¾-15
64 Straight-run gasoline	14¾-15	15 -15½	15 -15½
68 Straight-run gasoline	-17	16½-17	17½-17¾
68-70 Blend, 450 E. P	11½-12	11½-12½	12½-13
60-62 Blend, 450 E. P	11½-12	11¾-12½	12¼-13
62-64 Blend, 450 E. P	11½-12	11¾-12½	12¼-13
66-68 Blend, 440 E. P	12 -12¼	12 -13	12¾-13¼
68-70 Blend, 440 E. P	12 -12¼	12 -13	12¾-13¼
68-70 Blend, 420 E. P	12½-12¾	12½-13½	13 -14
OKLAHOMA			
48-50 450 E. P. naptha	9¼- 9½	9¼- 9½	9¾-10
50-52 450 E. P. naptha	9¼- 9½	9¼- 9½	9¾-10
56-58 450 E. P. gasoline	9½- 9¾	9¼- 9¾	9¾-10
58-60 (New Navy) 437E.P.131 i.b.p.	9¾-10	9½ 10	10 -10½
60-62 400 E. P. gasoline	10¾-11	10¾-11	11¼-11½
64-66 375 E. P. gasoline	11¼-11½	11½-12	12¼-12½
68-70 350 E. P. gasoline	12 -12½	12½-12¾	12¾-13
NORTH TEXAS			
48-52 450 E. P. naptha	9¼- 9½	9¼- 9½	9¾-10
56-58 450 E. P. gasoline	9½- 9¾	9¼- 9¾	9¾-10
58-60 450 E. P. gasoline	9½- 9¾	9½- 9¾	10 -10¼
58-60 New Navy gasoline	9¾-10	9¾-10	10 -10½
60-62 400 E. P. gasoline	10¾-11	10¾-11	11¼-11½
64-66 390 E. P. gasoline	11 -11¼	11½-11¾	12 -12¼
64-66 375 E. P. gasoline	11¼-11½	11¾-12	12¼-12½
68-70 350 E. P. gasoline	12¾-12½	12¼-12½	13 -13¼
NORTH LOUISIANA			
58-60 450 E. P. gasoline	10 -10¼	10¼-10½	10¾-11
58-60 437 Navy Gasoline	10¾-10½	10½-10¾	11 -11¼
64-66 390-400 E. P. gasoline	11¼-11½	11¾-12	12¼-12½
ARKANSAS			
58-60 450 E. P. gasoline	10 -10¼	10¼-10½	10½-11
58-60 Navy gasoline	10¼-10½	10¾-10¾	10¾-11¼
64-66 375 E. P. gasoline	11¼-11½	12 -12¼	12½-12¾

NATURAL GASOLINE

OKLAHOMA	Prices May 19	Prices May 12	Prices May 5
Grade A, 72-78 375 E.P.,90% Rec.	8 - 8¼	8¼- 8½	8¾- 9¼
Grade B, 76-82 375 E.P.,85% Rec.	7½- 7¾	7¾- 8¼	8 - 8¼
Grade C, 80-88 350 E.P.,78% Rec.	7 - 7¼	7 - 7½	7½- 8
Grade D, 88-92 350 E.P.	7 - 7¼	7 7½	7½- 8

(Motor Natural Gasoline—Blends)

OKLAHOMA	Prices May 19	Prices May 12	Prices May 5
Grade 1, 58-62 437 E.P.,91% Rec.	9¼- 9½	9¼- 9¾	9¾- 9¾
Grade 2, 58-62 450 E.P.,90% Rec.	9¼- 9½	9¼- 9¾	9¾- 9¾
Grade 3, 66-64 440 E.P.,88% Rec.	9¼- 9½	9¼- 9¾	9¾- 9¾
Grade 4, 66-70 435 E.P.,85% Rec.	9¼- 9½	9¼- 9¾	9¾- 9¾
NORTH TEXAS			
Grade A ,72-78 90% Rec.*	7¾- 8	8 - 8¼	8¼- 8¾
Grade B, 76-82 85% rec.*	7½- 7¾	7¾- 8	7¾- 8
Grade C, 80-88 78% rec.	7 - 7¼	7¼- 7½	7½- 7¾

*F. O. B. Breckinridge

(Motor Natural Gasoline—Blends)

Grade 1, 58-62 437 E. P.	9¼- 9½	9½- 9¾	10 -10¼
Grade 2, 58-62 450 E. P.	9¼- 9½	9½- 9¾	9¾-10

BURNING OILS

PENNSYLVANIA			
45 Water White	6¾- 6¾	6¾- 6¾	6¾- 6¾
46 Water White	7 - 7¼	7 - 7¼	7 - 7¼
47 Water White	7¾- 8	7¾- 8	7¾- 8
300 Burning Oil	7¼- 7½	7½- 7¾	7½- 8
OKLAHOMA			
40-42 Prime White Dist	4 - 4¼	4 - 4¼	4 - 4¼
41-43 Water White	4¼- 4½	4¼- 4½	4¼- 4½
42-44 Water White	4½- 4¾	4¼- 4¾	4¾- 5
NORTH TEXAS			
40-42 Prime White Distillate	4 - 4¼	3¾- 4	4 - 4¼
41-43 Water White Kerosene	4¼- 4½	4¼- 4½	4¼- 4½
42-44 Water White Kerosene	4½- 4¾	4½- 4¾	4½- 4¾
NORTH LOUISIANA			
41-43 Water White Kerosene	4½- 4¾	4½- 4¾	4½- 4¾
ARKANSAS			
41-43 Water White Kerosene	4¾- 5	4¾- 5	5¾- 5
42-44 Water White Kerosene	5 - 5¼	5 - 5¼	5 - 5¼

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

Optimism Felt Among Marketers In Indiana Territory

CHICAGO, May 17.—There is a decided tone of optimism in the oil trade in Chicago as well as among the jobbers of the upper Mississippi river valley. It may be a matter of psychology with the refiners and marketers in the city but it is a matter of weather out in the smaller towns along the marked highways. All parties seem to agree that the tide has turned. Of course that does not mean that they are right and the oil market has been saved from its 1923 fate, but popular optimism will go a long way toward bringing the desired result.

Possibly the 1250 cars of Navy gasoline that moved for export was not enough to turn the trend of the market, for refiners say that such a quantity is only "a drop in the bucket," nevertheless it was the export order that started the general feeling of hope and converted many bears into bulls. It happened on Wednesday that the Independent oil jobbers of Wisconsin were holding a meeting in Milwaukee. They came to the convention thinking about 9½-cent gasoline, and a few sales were made there at 9¾, it is said, nevertheless they went home talking about a 10-cent refinery price, equipped with the news of the unexpected export purchase.

Large companies report through their marketing departments that stations are beginning to do a good business. Refiners who depend on their contracts to supply their outlet are reporting conditions better. Jobbers are taking out the full quota of gasoline under the terms of their marginal contracts now, and are still able to cheapen their stocks by buying a little spot Navy in the open market at 10 cents. An hour's drive in the country in almost any western county will enable one to see license tags on automobiles from several states.

The feeling in Chicago on Monday, May 12, was hardly better than a panic. Refinery salesmen started telephoning their customers, who were due to purchase, and were called hold-up men when they quoted 10 cents. Some of the jobbers divulged the news that they were being quoted by re-sale agents in Oklahoma, offering Navy at 9½ cents and lower. They did not state, and probably did not know, that most of the material was to move out of north Texas. Some of these quotations are said to have gone as low as 9¼ cents which means the goods must have been turned loose originally for a price corresponding to 9⅛ cents Group 3. By the way, gasoline from north Texas, if rightly routed, can come into parts of Standard Oil Co. of Indiana territory at ⅛ cent premium over Group 3.

Kerosene is fairly steady. There is no sharp demand for it currently and the range is between 4⅜ and 4¾ covering both standard grades. Material heavier than kerosene is slow and hard to sell at a figure that will permit the refiner to feel he is coming out. Standard white distillate can be had for 3½ cents and the demand is slow. Gas oil is obtainable at 2¼ cents in large volume if the buyer is not too particular about quality.

Fuel oil is not especially easy to sell at 85 cents, but few refiners are offering it for less. A few sales in small quantities have been made at 90 cents. Smackover crude fuel is still being used in this vicinity, the consumers paying more for it than they would for 24-26, which is a comparatively recent development.

Refinery Markets On Lubricants, Heavy Oils

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas

NEUTRAL OILS

PENNSYLVANIA	Prices May. 19	Prices May 12	Prices May 5
(Viscous Test 70)			
220 Vis. No. 3 Asso. Filt.	-32	-33½	33¼-34
200 Vis. No. 3 Assoc. Filt.	28 -29	29 -30	30 -30½
180 Vis. No. 3 Assoc. Filt.	26 -27	27 -28	28 -28½
150 Vis. No. 3 Asso. Filt.	24 -25	25 -26	26 -26½
(Non-Viscous			
54 350-360 Flash	7½- 7¾	7½- 8	7½- 8
56 Miners Neutrals 300-305 Flash	7 - 7½	7 - 7½	6¾- 7
OKLAHOMA			
(Viscous Test 100			
70 Vis. at 100°F. No. 2½-3 color	4¼- 4¾	4¼- 4¾	4¼- 4¾
100 Vis. at 100°F. No. 2 color	5½- 6	5½- 6	5½- 6
100 Vis. at 100°F. No. 2½-3 color	5 - 5½	5 - 5½	5 - 5½
150 Vis. at 100°F. No. 3 color	12 -13	12 -13	12 -13
150 Vis. at 100°F. No. 4 color	11½-12½	11½-12½	11½-12¼
180 Vis. at 100°F. No. 3 color	14½-15½	14½-15½	14½-15½
180 Vis. at 100°F. No. 4 color	13¾-14¾	13¾-14¾	13¾-14¾
180 Vis. at 100°F. No. 5 color	13 -14	13 -14	13 -14
180 Vis. at 100°F. No. 6 color	12¼-13¼	12¼-13¼	12¼-13¼
200 Vis. at 100°F. No. 3 color	15½-16½	15½-16½	15½-16½
200 Vis. at 100°F. No. 4 color	14¾-15¾	14¾-15¾	14¾-15¾
200 Vis. at 100°F. No. 5 color	14 -15	14 -15	14 -15
200 Vis. at 100°F. No. 6 color	13¼-14¼	13¼-14¼	13¼-14¼
220 Vis. at 100°F. No. 3 color	16½-17½	16½-17½	16½-17½
220 Vis. at 100°F. No. 4 color	15¾-16¾	15¾-16¾	15¾-16¾
220 Vis. at 100°F. No. 5 color	15 -16	15 -16	15 -16
220 Vis. at 100°F. No. 6 color	14¼-15¼	14¼-15¼	14¼-15¼
240 Vis. at 100°F. No. 3 color	17½-18½	17½-18½	17½-18½
240 Vis. at 100°F. No. 4 color	16¾-17¾	16¾-17¾	16¾-17¾
240 Vis. at 100°F. No. 5 color	16 -17	16 -17	16 -17
240 Vis. at 100°F. No. 6 color	15¼-16¼	15¼-16¼	15¼-16¼
280 Vis. at 100°F. No. 3 color	20 -21	20 -21	20 -21
280 Vis. at 100°F. No. 4 color	19 -20	19 -20	19 -20
280 Vis. at 100°F. No. 5 color	18 -19	18 -19	18 -19
280 Vis. at 100°F. No. 6 color	17 -18	17 -18	17 -18
300 Vis. at 100°F. No. 6 color	19½-20½	19½-20½	19½-20½
SOUTH TEXAS			
(Viscous Test 100; cold test 0)			
100 Vis. No. 2 Color Unfilt. Pale	10½-11½	10½-11½	10½-11½
150 Vis. No. 2½ Color Unfilt. Pale	13 -14	13 -14	13 -14
200 Vis. No. 3 Color Unfilt. Pale	15 -16	15 -16	15 -16
300 Vis. No. 3 Color Unfilt. Pale	17 -18	17 -18	17 -18
500 Vis. No. 3½ Color Unfilt. Pale	19 -20	19 -20	19 -20
750 Vis. No. 4 Color Unfilt. Pale	25 -26	25 -26	25 -26
200 Vis. No. 2 Filt. Pale	-25	-25	-25
300 Vis. No. 2 Color Filt. Pale	-28	-28	-28
500 Vis. No. 2½ Color Filt. Pale	-31	-31	-31
750 Vis. No. 2½ Color Filt. Pale	-41	-41	-41
200 Vis. No. 5½ Color Red Oil	13½-14½	13¾-14½	13½-14½
300 Vis. No. 5½ Color Red Oil	16 -17	16 -17	15½-16½
500 Vis. No. 6 Color Red Oil	17 -18	17½-18½	17½-18½
750 Vis. No. 6 Color Red Oil	22 -23	23 -24	23 -24

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

CYLINDER OILS

PENNSYLVANIA	Prices May. 19	Prices May 12	Prices May 5
600 Steam Refined	20 -20½	20½-21½	21½-22½
635 Steam Refined	23 -24	24 -25	25½-26½
650 Steam Refined	-26	25½-26½	26½-27½
600 Flash	29 -30	-30½	29½-30
600 Warren E.	25½-26	-25½	-26½
600 Oil City E	24½-25	-24½	-25
600 Filtered D	29½-30	29 -30	-30
Cold Test Stocks (bright filtered)	38 -40	39 -40	38 -40
Cold Test Stock (dark filtered)	35 -36	36 -37	34 -36
Black Oil	- 7½	7 - 7½	7 - 7½
OKLAHOMA			
Bright Filtered Stock	29 -34	28 -34	28 -34
Medium Filtered Stock	20½-21	20½-21	20½-21
600 Steam Refined Olive Green	10 -10½	10 -10½	10 -10½
600 Steam Refined Dark Green	8¼- 8¾	8¼- 8¾	8¼- 8¾
Black Oil	4¾- 4¾	4¾- 4¾	4¾- 4¾

WAX

PENNSYLVANIA			
(Per Pound New York)			
122-124 White Crude Scale	5 - 5¼	- 5¾	5¾- 5¾
124-126 White Crude Scale	- 5½	- 5⅞	5⅞- 5⅞
OKLAHOMA			
(Per Pound Group 3)			
124-126 White Crude Scale	4¾- 4¾	4¾- 5	5 - 5¼

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil	5¼- 5½	5½- 5¾	5¾- 6
30-34 Fuel Oil	5¼- 5⅜	5¼- 5⅜	5¼- 5⅜
OKLAHOMA			
38-40 Straw Distillate	3½- 3¾	3¾- 3⅞	3¾- 3⅞
36-38 Straw Distillate	3¼- 3½	3¼- 3¾	3¼- 3¾
32-36 Gas Oil (Gal.)	2¾- 3	2¾- 3	2¾- 3¼
24-26 Fuel Oil (bbl.)	82½- .90	.85- .90	.85- .90
Fuel Oil, buyers, cars (bbl.)	.80- .85	.80- .85	82½-.87½
20-22 Fuel Oil (sellers)	82½-.87½	82½-.87½	.85- .90
40-50 Asphalt Content Road Oil	1.15-1.25	1.15-1.25	1.15-1.25
50-60 Asphalt Content Road Oil	1.20-1.30	1.25-1.35	1.25-1.35
60-70 Asphalt Content Road Oil	1.30-1.40	1.35-1.45	1.35-1.45
NORTH TEXAS			
38-40 Straw Distillate	3½- 3¾	3¾- 3¾	3¾- 3¾
32-36 Gas Oil (gal.)	2¾- 3	3 - 3¼	3 - 3¼
24-26 Fuel, per bbl.	.80- .90	82½- .90	.90- .95
South Texas Fuel	1.80-1.90	1.95-2.10	1.95-2.10
South Texas Gas Oil	4¾- 5	5 - 5¼	5 - 5¼
NORTH LOUISIANA			
32-36 Gas Oil (Gal.)	3¼- 3½	3¼- 3½	3¼- 3½
22-26 Fuel Oil (bbl.)	.95-1.00	.95-1.00	.95-1.00
ARKANSAS			
38-40 Distillate	3½- 3¾	3¾- 3¾	3½- 3¾
32-36 Gas Oil	3¼- 3½	3¼- 3½	3¼- 3½
22-26 Refinery Fuel Oil	.95-1.00	.95-1.05	.95-1.05
Smackover Crude Fuel	.90- .95	.90- .95	.90- .95
East Field Crude Fuel	- .95	- .95	- .95

Demand For Gasoline Improves In Western Pennsylvania

CLEVELAND, May 19. — Demand for gasoline in the western Pennsylvania market has improved steadily during the last week. While prices of some grades reflect a readjustment to the crude oil price reduction of May 10, other grades are fractionally higher than a week ago. The 12¾-cent 58-60 seems to have been cleared from the market and about all spot goods is moving at 13 to 13¼ cents. A few refiners have been asking 13½ cents but are meeting with too great resistance to maintain that figure yet.

Weather conditions were better at the end of last week but rains over Sunday slowed down the market today.

Kerosene trade is fair with prices back at the same level as a week ago after 45 water white had sagged to 6¼ cents during last week. Fuel oil is in only fair demand. Prices are softer with 5½ cents to top price for 36-40 in the Oil City-Warren-Bradford districts and 6 cents at Pittsburgh.

Movement of neutrals has been steady but prices of most refiners are 1 cent a gallon lower than last week. However, two large manufacturers who have built up a considerable demand for their output are still getting 30, 28 and 26 cents respectively, for 200, 180 and 150 viscosity grades.

Six hundred steam refined is cheaper but the amount available for spot shipment is still limited to small orders. The higher fire test stocks continue scarce and prices have been maintained more easily. Filtered and bright stocks appeared firmer today with demand fair to good.

Paraffin wax is easier and cheaper. Many manufacturers are still sold up and the slackness of new business is regarded by several as only a temporary condition.

Kentucky

Kentucky markets remain unchanged. Prices of gasoline are mainly nominal as growing demand has failed so far to reach a point great enough to establish a real market. Refineries at Louisville are either shut down or are running at such a low rate that the output is insufficient to meet the retail demands of the refiners own service stations. These refiners buying in the southwest to cover their own requirements.

At Lexington, these prices are quoted for gasoline: 58-60, 14½ cents; 60-62, 14¾; 64-66, 15, and 68-70, 15¼. Kerosene, 42-44, is moving at 7 cents; gas oil at 5¼, and 24-26 fuel at 4 cents a gallon.

Export Market Quiet As Buyers Expect Still Lower Prices

By Special Correspondent

NEW YORK, May 19

EXPORT market failed to recover last week from the slump into which it had fallen during the previous week. The majority of big European buyers look for further reductions in crude and refined product prices, and conseqently the demand last week was confined to actual requirements.

Gasoline is sagging. Export prices are more or less nominal and susceptible to shading. There were two inquiries from British and German sources for cargoes to be shipped during July, but the ideas of buyers were considerably below those of refiners. At the Gulf, new Navy was held at 11¾ cents and 64 gravity at 14 cents but it was persistently reported here that on a bid 11 cents and 13¾ cents, respectively, business could have been done.

Navy in single tank cars delivered to the trade was held at 14½ cents a gallon with indications that 14¼ cents could have been done on a firm bid.

Cased gasoline was in slightly better demand but refiners report considerable difficulty in securing freight space to the Orient. Japanese and Chinese buyers have been inquiring for larger quantities of gasoline, and were the space available, there probably would have been a fair volume of business closed with the Far East.

Kerosene is Disappointing

Kerosene export demand was very disappointing. Very little buying interest was shown at any time, and refiners appear to be more worried over the outlook and there is considerable pressure to sell. Some of the large French consumers are receiving goodly quantities on old contracts but are not interested in covering their future requirements at present asking prices. At the Gulf prime white in bulk for export is still quoted at around 5¾ cents and water white at 6¼ cents but foreign buyers showed little interest in the market at these figures but little business resulted as far as could be ascertained.

Cased kerosene enjoyed a more active inquiry than bulk goods, but interest was far from keen and the market is a purely waiting affair, being in the buyer's favor. Export prices here are entirely nominal and susceptible to shading. Water white in single tank cars delivered to the trade is offered at 8 cents a gallon. The tank wagon market is weak at 14 cents.

Bunker Oil

Bunker oil maintained a fairly steady tone as the week ended. The Texas Co. on May 14 reduced its price for Grade C oil 10 cents a barrel from $1.85 to $1.75 f. o. b. refinery. Export inquiries for bunker oil were fairly numerous but actual demand was confined to limited qantities. The call for Diesel oil was fair at unchanged prices, ranging from $2.31 to $2.73 per barrel at the refinery.

Gas Oil

Gas oil was one of the brightest spots in the market. Demand was a little better than during the preceding week but buyers as a rule were not inclined to purchase any more than needed for current requirements, feeling that this oil will soon reflect the depression in most of the other major products. At the Gulf 26-28 was held at 4¾ cents with rumors current that business could have been done at 4½ cents on a firm bid in one or two directions. Locally 36-40 was quiet and without new feature at 6 to 8 cents a gallon at the refinery. The outstide figure is nominal, being quoted by one of the big refiners who has virtually nothing to sell.

Lubricating oils were in spasmodic demand throughout the week and no sizable sales were uncovered. Spindle oils were virtually neglected and prices were very soft. Pennsylvania cylinder stocks were in fair request at unchanged prices, with leading refiners still quoting 600 s. r. in barrels New York at from 29½ to 32 cents a gallon. Western 600 was quoted at 18 to 19 cents, same basis.

Wax and Petrolatum

The waxes ruled dull and rather soft with few buyers inclined to purchase other than for spot and nearby requirements. For 118-122 A. m. p. in slack barrels, the price was 5¼ cents a pound while white crude scale 122-124 A. m. p. was held at 5⅛ cents a pound. There was little foreign interest in either crude scale or the match waxes.

The list of petrolatums was dull and featureless. Buyers were inquiring for snow white in a more active way but actual demand lagged. Lily white was held at 10½ cents and snow white at 13½ to 14½ cents. The medicinal oils were deviod of new feature.

British Importations

During the week ended April 28 24,251,702 gallons of petroleum were imported into the United Kingdom. Larger receipts at London included: 602,400 gallons of lubricating oil to the Lubricating & Fuel Oils, Ltd., from Philadelphia, while the Shell Marketing Co. received the following: 1,455,285 gallons of benzine from Balik Pappan; 915,284 gallons of crude oil from Balik Pappan and 2,556,790 gallons of crude oil from Curacao. The Anglo American Oil Co. received 2,916,170 gallons of naptha from San Pedro; 134,275 gallons of lubricating oil from New York; 211,910 gallons of fuel oil from New York and 2,539,110 gallons of naptha from Beaumont. The United Caucasian Oil Co. received 422,125 gallons of kerosene and 374,000 gallons of gasoline from Philadelphia. F. Applegate received 424,200 gallons of gasoline from New York. Immediate Transportation Co. received 271,600 gallons of kerosene from Constanza.

At Liverpool, the Anglo American Oil Co. received 344,400 gallons of lubricating oil from Baytown; 1,523,320 gallons of gas oil from Beaumont. Lubricating & Fuel Oils received 751,790 gallons of lubricating oil from Port Arthur.

At Barrow the Shell received 1,058,811 gallons of gasoline from Balik Pappan. At Bristol the Anglo Mexican Pertoleum received 207,537 gallons of gasoline from Los Angeles. At Manchester, the Anglo-American Oil Co. received 1,455,700 gallons of gasoline and 1,112,840 gallons of kerosene from Philadelphia and 1,241,520 gallons of lubricating oil from New York. At Aberdeen the Shell Mex received 606,992 gallons of fuel oil from Tampico. At Swansea the National Oil Refineries received 137,308 gallons of crude from Abadan.

New York Market

The following prices are quoted by eastern seaboard independent refineries on products which are manufactured from Mexican crude transported from Tampico to the refinery by tanker and from California crude.

	May 19
*Gasoline (New Navy) gal., Tank Cars..	-$14¼
‡Bunker oil (F. O. B. New York) bbl...	-1.75
Diesel Oil F. O. B. Refinery bbl.....	2.31-2.73
Gas Oil (36-40 refinery) gal.....	-.06
†Kerosene, 45-150 W.W.Bulk Del.,N.Y.....	-.08

*Delivered.
†Nominal.
‡Plus .06¼ charge lighterage.

Export Markets

Furnished by big exporting oil companies. No actual sales. Record for statistical purposes only.

Illuminating Oils

	May 19	May 12
Bulk, gal., Bayonne.....	6.50	6.50
Barrels, gal., Bayonne, cargo.....	18.50	18.50
Cases, gal., Bayonne.....	16.90	16.90

Prices for water white oil (150 test) are 1 cent higher than those for standard white.

Gasoline-Naptha (Cents per Gallon)

U. S. Navy, dead bulk.....	14.00	14.00
U. S. Navy, cases.....	28.15	28.15
Export Naphtha bulk.....	15.25	15.25
63-66 deg. bulk.....	17.00	17.00
66-68 deg. bulk.....	18.50	18.50

Tide Water Oil Company (f. o. b. Bayonne)

58-59 deg. bulk.....	14.50	14.50
58-59 deg. cases.....	28.15	28.15
Export grade, Navy Specifications bulk.....	14.00	14.00
63-65 deg. bulk.....	17.00	17.00
68-72 deg. bulk.....	19.50	19.50

	Bulk	Barrels	Cases
Standard white 110.....	6.50	13.50	16.90
Water white 150.....	7.50	14.50	17.90

The Texas Company

Gasoline, cases.....		28.15	28.15
Kerosene	**Bulk**	**Barrels**	**Cases**
Standard White.....	6.50	13.50	16.90
Prime White.....	7.00	14.00	16.40
Water White.....	7.50	14.50	17.90

Crude Oil Prices All Fields

EASTERN FIELDS

	1924 May 19	1923 High		1923 Low		1922 High		1922 Low	
Bradford-Allegany	$4.25	Feb.15	$4.25	Nov.13	$2.60	Jan.1	$4.00	July 19	$3.00
Other Pennsylvania	3.75	Feb.15	4.00	Nov.13	2.35	Jan.1	4.00	July 19	3.00
Cabell	1.95	Feb.15	2.76	Nov.13	1.20	Jan.1	2.61	July 19	1.86
Corning	2.15	Feb.15	2.30	Nov.14	1.25	Jan.1	2.40	July 20	1.75
Somerset	2.05	Feb.15	2.55	Nov.13	1.15	Jan.1	2.40	July 19	1.65
Somerset Light	2.25	Feb.15	2.80	Nov.13	1.30	Jan.1	2.65	July 19	1.90
Ragland	1.10	Feb.15	1.10	July 10	.75	Jan.1	1.25	July 19	1.00

Somerset oil run prior to Oct. 1, 1923, takes price of 6 cents lower than above quotations.

CENTRAL STATES FIELDS

Wooster	$2.15	Feb.19	$2.50	Nov.9	$1.25	Jan.1	$2.70	Sept.21	$1.90
Lima	2.28	Feb.19	2.58	Nov.9	1.43	Jan.1	2.48	July 20	1.98
Indiana	2.08	Feb.19	2.38	Nov.9	1.23	Jan.1	2.28	July 20	1.78
Princeton	2.07	Feb.19	2.37	Nov.8	1.22	Jan.1	2.27	July 20	1.77
Lodi	2.15	Feb.19	2.50	Nov.9	1.25	Jan.1	2.70	July 20	1.90
Illinois	2.07	Feb.19	2.37	Nov.8	1.22	Jan.1	2.27	July 20	1.77
Waterloo, Ill	1.55	Feb.19	1.85	Nov.9	.70	Jan.1	1.75	July 20	1.25
Plymouth	1.45	Feb.19	1.75	Nov.9	.60	Jan.1	1.65	July20	1.15
Canadian Petrolia	2.68	Feb.19	2.98	Nov.9	1.83	Jan.1	2.88	July 20	2.38

MID-CONTINENT AND NORTH TEXAS FIELDS

Below 30	$1.25	39 and above	$2.25
30-32.9	1.45	Currie	2.25
33-35.9	1.75	Mexia	2.00
36-38.9	2.00	Powell	2.00

Magnolia's Price Schedule
North and North-Central Texas, Okla., and Kan.

Under 28	$1.00	39 and above	$2.00
28-30.9	1.15	Corsicana, light*	1.75
31-32.9	1.30	Corsicana, heavy	1.00
33-35.9	1.60	Thrall	1.00
36-38.9	1.75	*Including Powell	

NORTH LOUISIANA-ARKANSAS FIELDS

Caddo, 38 degrees and above	$1.85	do 35 to 37.9	$1.65
do 35 to 37.9	1.75	do 32 to 34.9	1.50
do 32 to 34.9	1.65	De Soto	1.85
do below 32	1.50	Crichton	1.65
Homer, 35 and above	1.85	Bellevue	1.75
do 33 to 34.9	1.75	Smackover, 26 and above	1.35
do 31 to 32.9	1.65	25 to 25.9	1.20
do below 31	1.50	24 to 24.9	1.10
Haynesville, 33 and above	1.75	Below 24 Be	1.00
do below 33	1.65	Stephens 28 and above	1.40
El Dorado, 33 and above	1.85	Stephens 26-27.9	1.35
El Dorado, below 33	1.75	Stephens, 25-25.9	1.20
Bull Bayou, 33 and above	1.80	Stephens Below 25	1.00

GULF COASTAL FIELDS

	1924 May 19	1923 High		1923 Low		1922 High		1922 Low	
Spindletop	$2.00	Mar.15	$1.75	Aug.18	$1.00	Jan.1	$1.25	Dec.30	$1.25
Goose Creek "A"	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Goose Creek "B"	1.70	Mar.15	1.50	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Sour Lake	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Humble	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Batson	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Hull "A"	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Hull "B"	1.70	Mar.15	1.30	Jan.1	.80	Jan.1	1.25	Dec.30	1.25
West Columbia	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Edgerly	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Vinton	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Jennings	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Dayton	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Saratoga	2.00	Mar.15	1.75	Aug.18	1.00	Jan.1	1.25	Dec.30	1.25
Orange "A"	2.00								
Orange "B"	1.70								
Pierce Junction "A"	2.00								
Pierce Junction "B"	1.70								

WYOMING FIELDS

Elk Basin	$1.95	Feb.17	$2.10	Nov.9	$ .95	Jan.1	$1.90	Aug.4	$1.20
Grass Creek	1.95	Feb.17	2.10	Nov.9	.95	Jan.1	1.90	Aug.4	1.20
Big Muddy	1.50	Feb.17	1.65	Nov.9	.45	Jan.1	1.40	Aug.4	.70
Salt Creek	1.60	Feb.17	1.65	Nov.9	.60	Jan.1	1.40	Aug.4	.70
Lance Creek	1.90	Feb.17	2.10	Nov.9	.80	Jan.1	1.90	Aug.4	.20
Rock Creek	1.70	Feb.17	1.75	Nov.9	.60	Jan.1	1.50	Aug.4	.80
Osage	1.90	Feb.17	2.10	Nov.9	.80	Jan.1	1.90	Aug.4	1.20
Cat Creek, Mont	1.95	Feb.17	2.10	Nov.9	.95	Jan.1	1.90	Aug.4	1.20
Sunburst, Mont	1.05	Feb 17	1.50	June 6	.70				

CALIFORNIA

14-19.9	$1.00	25-25.9	$1.10	30-30.9	$1.25
20-20.9	1.01	26-26.9	1.13	31-31.9	1.28
21-21.9	1.02	27-27.9	1.16	32-32.9	1.31
22-22.9	1.03	28-28.9	1.19	33-33.9	1.34
23-23.9	1.05	29-29.9	1.22	34-34.9	1.37
24-24.9	1.07			35 and above	1.40

North Texas Refinery Markets Improve

Staff Special

WICHITA FALLS, May 17.—With refinery runs being kept at a low level and much of the distress gasoline removed from north Texas markets through activity of the Carter Oil Co. (Standard of New Jersey) there has been a decided turn for the better in conditions in this area.

Some Navy gasoline is still selling at 9¾ cents a gallon for resale but a majority of the refiners are asking 10 cents a gallon and upwards. Several have put their prices up to 10½ cents.

Nearly every refiner in the field who had Navy to offer at low prices a week ago, now has orders on his books which will keep him fairly well cared for during the next few weeks. With a gradual increase in business from the jobbing trade, refiners hope to be able to build their prices back to a reasonable level again.

High gravity gasoline is still a burden on the Texas market. Several refiners have large stocks of this left over since the last export buying. One tentative inquiry was in the field this week but no business has resulted. Buyers assert that they are able to pick up scattered cars of 64-66, 375 end point goods at 11¼ cents a gallon.

Kerosene is still scarce. Buyers demanding immediate shipment are having difficulty in filling their requirements. Prices have held firmly at 4¼ to 4½ cents a gallon. Gas oil is slightly more plentiful and prices are around ⅛ cent lower. Considerable material is offered at 2¾ cents a gallon.

Fuel oil is unchanged at 85 to 90 cents a barrel. It is reported that some refiners are accumulating a little fuel in spite of the fact that their runs are lower.

The Texhoma Oil & Refining Co. has met the new schedule of crude prices posted a week ago by the Magnolia Petroleum Co. The Texas Co. and other large companies have not met the lower schedule, however. It is generally believed now that the Magnolia cut was prompted by a congested situation peculiar to its own lines.

Fair Weather Promised This Week

CHICAGO, May 19.—Another week of good weather is promised to the jobbers of Standard Oil Co. of Indiana territory between now and May 24. The man who keeps a weather eye on all the 11 states which most concern the Group 3 refiners, promises in an abstract way that much gasoline will be consumed this week.

Normal temperatures will prevail throughout the entire forecast district. In the upper Mississippi and lower Missouri river valleys the weather will be fair all week, he says. It will be even warmer than normal in the Ohio river

valley and Tennessee, but there will be scattered showers early in the week. In the region of the Great Lakes the whole week may be cloudy but rainfall will be light and the temperatures will be steady and comfortable.

Last week was not without its showers. The daily weather maps of the middle west show that light rains were more or less frequent but they were narrow in scope and short in duration. Only a few points had enough rain to hinder travel even on dirt roads.

Chemicals Are Quiet; Benzol Active

By Special Correspondent

NEW YORK, May 19.—Following is a review of the market during the last week on various oils and chemicals used by the oil industry in refining and compounding.

Benzol

Good demand continued. Prices are steady. Production is increasing but consumption is gaining. Stocks on hand are small.

Soda Ash

Little animation. Business chiefly against old contracts. Buyers showing academic interest only. Outlook favors buyer.

Caustic Soda

Export inquiries numerous but demand falls. Movement largely against old business. Prices easier but unchanged.

Sulfuric Acid

Softening. Demand very light. More pressure to sell. Outlook bearish.

Bleaching Powder

Tending lower. Few inquiries or orders received. Buyers anticipate drop and are holding off.

Animal Oils

Few price changes. Interest in lard oil is keener. Stearic acid is steady. Better demand for oleo oil.

Fish Oils

No price changes. Stocks ample. Business routine.

Naval Stores

The movement in naval stores was fair last week, but business was by no means heavy. Much of the buying was confined to hand-to-mouth orders and price fluctuations were comparatively narrow. Southern naval stores markets were steady.

Linseed Oil

Spot to June linseed oil in carlots, cooperage basis, was held at 94 cents a gallon while July-September same basis was offered at 92 cents a gallon with intimations that the latter figure might have been shaded a trifle on a firm bid for a sizable quantity. Crushers seemed more inclined to press sales as the week closed, but there was not a great deal of oil available for prompt delivery.

Refiners' and Jobbers' Supplies

Following are the average market prices for the week on the principal materials used by refiners and jobbers f. o. b. shipping point as effective this date.

***Benzol**

		May 19	May 12
Pure Water White, Tanks	gal.	25–30	25–30
Drums	gal.	30–35	30–35
90% Tanks	gal.	23–28	23–28
Drums	gal.	28–33	28–33

Refiners' Supplies

Soda Ash light 58% bags	cwt.	–$1.38	–$1.38
Silicate of Soda 60 deg. Drums	cwt.	–1.70	–1.70
Sal Soda wks	cwt.	1.10–1.25	1.10–1.25
Caustic Soda 76% solid	cwt.	–3.10	–3.10
Chloride of Lime	cwt.	.....	.....
Works		1.90–2.10	1.90–2.10
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point	per ton	9.00–10.00	9.00–10.00

Jobbers' Supplies (Open Market)

Vegetable Oils—			
Linseed carloads Spot	gal.	–.94	–.95
May-June		–.94	–.95
July-Sept		–.92	–.93
Tanks, spot		–.88	–.89
Less carload Spot	gal.	–.97	–.98
Less than 5 Bbls. Spot		–.99	–1.00
Boiled, tank Spot	gal.	–.90	–.91
Boiled, carloads Spot	gal.	–.96	–.97
*Soya Bean Spot, Tanks	lb.	–.10½	–.10½
Animal Oils—			
English Degras	lb.	.04¾–.05¼	–.04¾
Domestic Degras, bbls. carloads	lb.	.04¼–.05¼	–.04¼
*Horse	lb.	–.08	–.08
Oleic Acid—			
Dist	lb.	–.09½	–.09½
Saponified	lb.	–.09½	–.09½
Lard Oils—			
Prime Winter Strained	1 to 1½ ffa. 40/45c.t.	lb. .13⅞	$.13⅞
Extra Winter Strained	2 to 4½ ffa. 40/45c.t.	lb. .12¼	.12¾
Extra	4 to 5 ffa. 40/45c.t.	lb. .11¾	.11¾
Extra No. 1	7 to 10 ffa. 40/50c.t.	lb. .11¼	.11¼
No. 1	15 to 18 ffa. 40/45c.t.	lb. .10¾	.10¾
No. 2	22 to 23 ffa. 40/45c.t.	lb. .10½	.10½
Prime Edible Tallow under 1¾ ffa. 40/45c.t. N.Y.		lb. 08½–.08¾	08½–.08¾
Tallow acidless		lb. –.11¼	–.11¼
Lard Stearine		lb. –.13½	13½–.13¾
Oleo Stearine		lb. 10⅞–.11	10⅞–.11
Neatsfoot Oil—			
Pure	bbls.–lb.	.14¾	.14¾
Extra	do lb.	.11¼	.11¼
No. 1	do lb.	.10¾	.10¾
Cold pressed	lb.	.18¾	.18¾
Fish Oils—			
Menhaden Oil Light pressed	gal.	–.60	–.60
White	gal.	.65–.67	.65–.67
Yellow bleached	gal.	.63–.65	.63–.65
*Herring tank cars coast	gal.	–.50	–.50
Whale, extra winter bleached	gal.	–.81	–.81
Seal	gal.	Nominal	
Naval Stores—			
Turpentine, N.Y.	gal.	.92	.92
Turpentine†	gal.	.85	.87
Rosin B. N. Y.	Bbl.	5.65	5.50
Rosin F. N. Y.	Bbl.	6.00	5.80
Rosin B†	Bbl.	4.50	4.30
Rosin F†	Bbl.	4.85	4.60
Rosin Oil 1st run	gal.	.42	.42
Rosin Oil 2nd run	gal.	.45	.45
Pine Tar—			
Kiln Burnt	Bbl.	11.00	11.00
Retort	Bbl.	11.00	11.00

†Savannah, Ga. market.
*Nominal

Mid-Continent Markets

(Continued from Page 107)

readily than they did a week or so ago. Cosden & Co. has not changed its listings for several months.

Bright stocks are in good demand for blending and supplies are not large at any plant in the state. Super-brights are bringing 32 to 34 cents and ordinary brights from 29 to 31 cents per gallon. One or two refiners are behind on shipments on this particular commodity. Steam refined cylinder stocks are easy.

Fuel Oil Steadier

Fuel oil appears to have steadied down at its present level of 85 to 90 cents per barrel. No price changes of importance have been noted for two weeks or more. On Santa Fe rails refiners are getting as much as 95 cents a barrel for some fuel. Near the Kansas line prices of $1 a barrel are not uncommon, particularly on short hauls for drilling wells. Gas oil is sluggish at 2¾-3 cents.

A little 40-50 road oil is reported to have been sold as low as $1.10 a barrel recently. Generally speaking prices are 10 to 15 cents higher than that. In the vicinity of Tulsa 50-60 road oil is 3 cents a gallon. Refiners of 60-70 road oil are asking $1.35 to $1.45 a barrel.

Most South Texas Lubes Maintain Prices

HOUSTON, May 17.—Lubricants in the Houston district are maintaining prices at recent levels with virtually no changes in selling prices of any grades. Reactionary crude tendencies elsewhere have caused some unsettlement in demand but quotations are firm on both filtered and unfiltered grades of pales. Red oils are easier.

Only in the south Texas fuel market is there any weakness worthy of consideration. This is because Luling crude can be delivered at $1.40 in this district in comparison with Gulf Coastal contracts based at approximately the crude market level. Because of this condition, Gulf Coastal crude fuel available only in limited quantities is selling around $1.80 to $1.90 a barrel in face of competition from Luling and Shreveport.

North Louisiana fuel can be placed in Houston territory for about $1.55 a barrel.

Puts Out Road Map

COLUMBUS, O., May 19.—The Public Service Oil Corp. of this city, as part of its advertising program, has published a road map of Ohio on the front of which it designates locations of service stations operated by the comvany in various towns. The back of the map includes information on auto trails in the state.

OIL STOCKS AND FINANCES

House Of Morgan Now Controls Marland Executive Body

NEW YORK, May 16

A NEW executive committee which is made up mostly of men associated with J. P. Morgan & Co., the banking house, will henceforth direct the affairs of the Marland Oil Co. The committee was selected May 14 following the annual meeting of the Marland company the day before.

These new interests were added to the Marland's board of directors at the annual meeting; William C. Potter president, Guaranty Trust Co.; Charles Smithers of F. S. Smithers & Co., and A. W. Haynes, counsel for the Marland. Other directors were re-elected. The new executive committee is made up of George Whitney a partner in the Morgan firm; E. W. Marland, president of the company; W. H. McFadden and W. G. Lackey, vice-persidents; William C. Potter; Mr. Whitney; Mr. Smithers; E. N. Potter, of Potter & Co.; Leonard F. Taylor, ad Charles E. Stephenson, secretary.

The House of Morgan became interested in the Marland company through the purchase of 300,000 shares of stock at $30 a share early this year. The Morgans also have an option on approximately 275,000 additional shares at $39 a share. This option does not expire until Feb 10, 1925. It cost $1 a share, making a total of $40 a share for the stock if the option should be exercised.

Bondholders Subscribe

In connection with the sale of stock, holders of stock option warrants on the company's bonds subscribed to 39,600 shares at $30 a share under special privilege which expired April 1. Warrants originally provided privilege to subscribe to 25 shares of stock at $40 a share for each $1000 bond held. When the stock was sold to the Morgans the stipulation was reduced to $30 a share. Proceeds from the exercise of the warrants amounted to $1,188,000.

A program of expansion is predicted for the Marland company under the Morgan guidance. Already subsidiary companies have been organized for operations in California and Colorado.

Earnings are showing improvement, averaging in the first quarter of this year $1.86 a share as against $1.52 a share for all of last year when net profits were hit severly by the general depression in the oil industry. Net earnings in 1922 were equivalent to $4.44 a share. The net in the first qparter of this year amounted to $2,892,837 after interest, taxes, depreciation and depletion as against $2,964,784 before depreciation and depletion in the first quarter of 1923.

In connection with the quarterly report, Mr. Marland made this comment at the meeting held in Wilmington, Del.:

"While this income showing for the first quarter is gratifying, and so tar as we now see will be improved in the second quarter, the petroleum industry has not entirely recovered its proper earning power. Production and consumption are now almost on balance.

"There is no new oil field coming on and sufficiently defined to be known as of probable great importance. The major pools are all declining, and if no such pools are brought into production this year, drafts will have to be made on storage. This situation would afford oil companies the opportunity they need of disposing of their surplus stocks, and would bring the industry into healthy condition. So long as the possibility exists of a major pool coming in this year and upsetting the situation, the management of your company will continue to maintain a strong current assets position.

"Our net production is in excess of 2,000 barrels per day in northern Oklahoma of high grade oil."

The balance sheet as of March 31, 1924, shows current assets of $19,547,144 as against current liabilities of $2,947,181. On Dec. 31, last, current assets were $14,707,248 and current liabilities $8,765,-674. Bills payable during the quarter were reduced from $7,156,111 to $356,853, showing the application of the proceeds from the stock sale. Current assets on March 31 included $3,103,755 cash in bank and $9,316,663 crude and refined oils.

Oil Dividends

	Amount	Payable	Stock of Record
Calif. Pet. q	43¾c	June 2	May 20
do pfd. q	$1.75	July 1	June 20
Chesebrough Mfg. q	62½c	June 30	June 7
do pfd	$1.75	June 30	June 7
Continental Oil q	50c	June 16	May 17
Cumberland P. L. q	$3	June 16	May 31
Imperial, Ltd. q	75c	June 2	May 17
Northern P. L. s.a	$3	July 1	June 6
Ohio Oil q	50c	June 30	May 24
Pacific Oil s. a	$1	July 21	June 13
S. O. Kansas q	50c	June 16	May 31
S. O. New Jersey q	25c	June 16	May 26
do pfd. q	$1.75	June 16	May 26
S. O. New York q	35c	June 16	May 19
S. O. Ohio q	$2.50	July 1	May 29
Tidal Osage pfd. q	$1.75	June 1	May 24

Consolidated income account of Marland Oil Co. and subsidiaries for last four years compare:

	1923	1922	1921	1920
Gross income	$37,937,409	$17,511,343	$8,883,608	$9,326,943
Operating expenses, etc	31,039,270	9,643,359	5,997,085	3,864,709
Operating income	$6,898,139	$7,867,984	$2,886,523	$5,462,234
Other income	139,643	224,140	119,036	156,514
Total income	$7,037,782	$8,092,124	$3,005,559	$5,618,748
Interest, amortization	1,418,583	896,883	618,434	276,133
Inventory adjustment	.....	.....	823,701	.....
Depreciation, depletion, etc	3,896,199	3,065,611	.....	.....
Net income	$1,723,000	$4,129,630	$1,563,424	$5,342,615

Gross earnings include $5,000,000 in dividends received from Comar Oil Co. and operating and administrative expenses include purchase by Marland Oil Co. subsidiaries of Comar Oil Co's. production at market price.

Consolidated balance sheets as of Dec. 31 for last three years compare:

	1923	1922	1921
ASSETS			
Cash	$ 3,477,640	$ 891,705	$ 330,624
Bills, accounts receivable	3,835,790	3,162,692	1,642,259
Inventories	7,003,656	4,393,424	4,362,491
Prepaid interest, insurance	259,741	128,192	119,457
Miscellaneous items	130,421	103,891	77,426
Gold bonds purchased	591,000	104,000	.....
Unadjusted debits	806,162	1,071,848	784,750
Sundry debits	352,433	256,004	7,733
Minority interest in subsidiaries	689,537	748,610	970,425
Investment in affiliated co.'s	8,236,932	4,908,021	2,612,654
Plant, equipment, leases less depletion	63,410,653	50,269,673	53,409,716
Total	$88,793,965	$66,038,060	$64,317,535
LIABILITIES			
*Capital and surplus	$58,227,348	$51,859,426	$48,471,105
Minority stock in sub. co.'s	198,118	315,300	4,508
Bills, accounts payable	8,450,777	2,649,023	1,615,536
Accrued taxes, interest, etc	314,896	425,859	198,484
Gold bonds	5,643,000	6,308,000	3,785,000
Equipment certificates	4,035,236	4,402,564	3,657,979
Deferred obligations	.....	40,888	44,071
Reserves	11,924,590	37,000	6,540,852
Total	$88,793,965	$66,038,060	$64,317,535

*Represented by 1,132,184 no par shares.

Cosden & Co. Loses $3,700,000 On Its 1923 Operations

NEW YORK, May 17. COSDEN & CO. suffered a loss of $3,783,623 on its 1923 operations after interest, depreciation, depletion and an inventory adjustment of $3,000,000. This compares with net profit of $5,476,028 after all charges and federal taxes in 1922, equivalent after preferred stock dividends, to $4.26 a share on the common.

The balance sheet as of Dec. 31 shows current assets amounting to $14,450,900 and current liabilities of $11,463,448, leaving a working capital of $2,987,452. Inventories amounted to $9,773,328, being represented in part by more than 3,000,000 barrels of crude oil which have greatly appreciated in value since the first of the year. Recently the company is reported to have sold 500,000 barrels of crude to the Prairie Oil & Gas Co. at $2.25 a barrel.

Concerning the 1923 operations, President J. S. Cosden made this statement:

"As is well known, the condition of the oil industry during a larger part of 1923 was unsatisfactory and your company could hardly escape participation in the situation but it is gratifying to state that the ground lost has now been largely recovered through operating profits as well as improved inventories' values.

"The market in crude and refined production has greatly improved since the beginning of the year, and it is our expectation that accumulating profits will place the company in shape to resume, in a reasonable time the payment of dividends on the common stock which were suspended last fall.

"Production has been increased materially since the first of the year and drilling operations now in progress on proven leases should, at an early date, bring the production to the highest volume the company has ever had."

Net earnings for the first quarter of 1924 are reported to be $3,942,875 before depreciation and depletion.

Cleveland Stock Market

	Par	May 16 Bid	Asked	High	Low
Canfield Oil Co.	$100	135	.....	.....	.....
do pfd.	100	.....	94	95¼	95
National Refining*	25	37	38½	53	33¾
do pfd.	100	124	130	126	116
Paragon Refining	25	.....	6	12½	5¼
do pfd.	100	55	58	75	40
Fred G. Clark Co.	10	3½	.....	6	2

*Ex-dividend.

Pierce Re-Organization Plan Approved

NEW YORK, May 17.—The Pierce Oil re-organization has been approved by a majority of the preferred and common stockholders who met this week in Richmond, Va. This plan includes the formation of the Pierce Petroleum Corp., which has been chartered in Delaware with 2,500,000 shares of no par common stock authorized.

Property of the Pierce Oil Corp. will be taken over and the present company will receive between 1,100,000 and 1,200,000 shares in the petroleum company. The present company thereby becomes a holding corporation only. Present stockholders will be granted rights to subscribe at $7 a share to 1,300,000 additional shares of the new company's stock.

The following statement concerning the special meeting was given out in New York by Samuel Untermyer:

"The resolutions passed authorized (1) the transfer of all the property of the present company to the new company, the Pierce Petroleum Corp., under terms of the plan; (2) the settlement of pending litigation with International-Great Northern Railway; (3) creation of a Mexican company as subsidiary of new corporation; (4) ratification of acts of directors at their meeting authorizing plan of reorganization, and (5) decrease of preferred and common capital stock by purchase for retirement of any multiple of one share of preferred stock and eight shares of common stock tendered for purchase July 1, 1925, but such decrease not to be effective unless a total of 25,000 shares of preferred and 200,000 shares of common stock is tendered—the effect of which is that for approximately one share of preferred and eight shares of common stock, the stockholders electing to make the exchange will be entitled to seven and a fraction shares of common stock of the new company.

"The new company has been organized with property and assets of the old company have been transferred to it.

"Management was represented at the meeting by W. H. Coverdale, chairman of the board of Pierce Oil Corp., and Samuel Untermyer and Alvin Untermyer, counsel of the company. The opposing faction was represented by Henry W. Anderson of Richmond as counsel."

Mr. Coverdale announced that the company would fight vigorously the action for a receivership filed in St. Louis by Mrs. Mabel C. Priest, wife of Henry S. Priest, one of the directors of the company when it was in the control of the Pierce faction. Mr. Priest is one of the defendants in the suit for an accounting of the acts of the Pierce faction during its incumbency from Oct. 2, 1922, until about July 1, 1923.

Consolidated income accounts of Standard of New Jersey for last four years follow:

	1923	1922	1921	1920
Gross income	*$367,334,410	*$328,286,827	$478,392,951	$657,909,828
Costs and expenses	340,306,940	305,792,577	469,300,449	572,387,287
Balance	$ 27,027,470	$ 22,494,250	$ 9,092,502	$ 85,522,541
Other income	8,490,245	10,435,764	16,565,016	10,701,735
Total income	$ 35,517,715	$ 32,930,014	$ 25,657,518	$ 96,224,276
General expenses, taxes, depreciation	20,010,733	20,042,273	19,896,024	16,863,511
Balance	$ 15,506,982	$ 12,887,741	$ 5,761,494	$ 79,360,765
Dividends received from other than affiliated companies	.....	.....	1,742,504	2,400,464
Adjustments	.....	.....	.....	4,967,821
Surplus	$ 15,506,982	$ 12,887,741	$ 7,503,998	$ 86,729,050
Federal tax reserve	.....	.....	.....	14,106,843
Balance	$ 15,506,982	$ 12,887,741	$ 7,503,998	$ 72,622,207
Proportion of earnings of affiliated companies after federal taxes	40,788,300	33,354,695	26,341,932	91,839,202
Net Surplus	$ 56,295,282	$ 46,242,436	$ 33,845,930	$164,461,409

*Gross income from operations with all departmental transactions eliminated.

Consolidated balance sheets as of Dec. 31 for last five years follow:

	1923	1922	1921	1920	1919
ASSETS					
Plant and equipment less depreciation	$ 464,765,468	$ 441,981,831	$ 431,569,324	$ 384,583,206	$312,273,130
Investments	158,356,076	134,777,894	131,257,552	111,441,549	100,621,982
Inventories	245,908,138	263,200,023	260,397,309	284,340,961	185,750,373
Accounts receivable	267,888,285	269,221,993	279,848,017	288,158,551	236,896,058
Cash	11,086,985	14,579,149	12,867,775	33,788,328	17,819,055
Total	$1,148,004,953	$1,123,760,890	$1,115,939,977	$1,102,312,595	$853,360,598
LIABILITIES					
Preferred stock	$ 199,972,900	$ 199,972,900	$ 196,676,600	$ 196,676,600	$ 98,338,300
Common stock	502,099,200	498,587,125	98,879,325	98,338,300	98,338,300
Reserve for annuities	3,356,655	2,971,613	2,503,929	2,001,978	791,718
Accounts payable	204,855,636	205,612,235	217,391,252	183,834,314	157,005,383
Marine insurance reserve	3,921,993	3,253,146	2,578,663	412,989	594,341
Tax reserve	5,731,155	7,194,875	5,888,575	28,901,489	.....
Surplus	228,067,414	206,168,996	592,021,633	592,146,925	498,292,561
Total	$1,148,004,953	$1,123,760,890	$1,115,939,977	$1,102,312,595	$853,360,598

Transactions In Oil Shares on New York Stock Exchange

1923 High	1923 Low	1924 High	1924 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended May 17 Sales	First	High	Low	Last	Ch'ge
.....	.....	43	25	(sh) 200,000	N.P.	American Republics	.....	.....	.....	.....	.....	.....	.....	.....
29½	24⅞	34⅝	28¼	$40,060,500	$25	Associated Oil	37½cQ	Apr. 25, 24	2,100	29⅛	29⅜	28½	29⅜	+ ⅝
160	98¾	140½	104	50,000,000	100	Atlantic Refining	$1Q	Mar. 15, 24	2,500	106	107	105¼	106⅞	+ ⅜
120	115	118	114	20,000,000	100	do pfd	$1¼Q	May 1, 24	.....	.....	.....	.....	.....	.....
35	9⅞	18⅜	14	14,000,000	25	Barnsdall Corp. A	.....	Apr. 30, 21	2,400	15	16½	15	16	0
22	6	14⅝	10	3,713,275	25	do B	.....	Apr. 30, 21	1,500	13	13⅝	12⅜	13	0
9⅛	1¾	5	1⅝	(sh) 150,000	N.P.	Caddo Central O. & R.	.....	.....	1,600	2	2¼	1⅝	1⅞	0
29⅜	17⅛	29¼	22¼	$ 17,377,000	$25	California Petroleum	43¾cQ	Mar. 1, 24	9,600	22½	23⅜	22¼	23⅛	+ ⅜
110½	90½	107	94	12,989,500	100	do pfd	$1¾Q	Apr. 1, 24	300	95⅛	97	95⅛	97	—1
62¼	22¾	40¼	27¼	(sh) 1,217,427	N.P.	Cosden & Co	.....	Aug. 1, 23	66,300	28½	29½	†27¼	28¾	— ¼
90⅜	83¼	95	88¼	$ 6,698,000	$100	do pfd	$1¾Q	Mar. 1, 24	100	88¼	88¼	†88¼	88¼	—2¾
54	23	46¾	31⅜	19,830,000	100	General Asphalt Co	.....	.....	3,000	33½	35	33¼	34½	+ ½
88	60	81	71½	7,416,000	100	do pfd	$1¼Q	Mar. 1, 24	100	75½	75½	75½	75½	— ½
.....	.....	43¼	38½	27,876,800	25	General Petroleum	50cQ	Mar. 15, 24	5,600	39¾	40¼	39⅜	39¾	— ¼
78	40¾	82½	61	25,000,000	100	Houston Oil Co	.....	.....	6,900	62⅛	64⅞	61⅜	62⅝	—1⅛
11¼	3⅜	9¼	6⅜	(sh) 450,000	N.P.	Independent Oil & Gas	25c	Mar. 31, 24	1,100	7½	7¾	7½	7¾	— ⅜
19	1	2⅜	¾	$ 5,000,000	$25	Indiahoma Refining Co	.....	July 1, 21	500	1	1	¾	¾	— ¾
8½	3½	5⅞	3¾	7,830,450	10	Indian Refining Co	.....	Dec. 15, 20	.....	.....	.....	.....	.....	.....
49½	40½	65	60	2,296,400	100	do pfd	.....	Dec. 15, 21	.....	.....	.....	.....	.....	.....
19¼	7¼	16⅞	12½	(sh) 990,680	N.P.	Invincible Oil Corp	.....	.....	9,200	12½	13⅜	11¾	12⅞	+ ⅜
3½	¼	1	½	$ 1,818,730	$10	Kansas & Gulf Corp	.....	.....	.....	.....	.....	.....	.....	.....
28¾	16	37½	25⅜	(sh) 260,800	N.P.	Maracaibo Oil	.....	.....	5,400	27	27¾	26	27¾	+ ⅞
59⅝	17½	42	30	(sh) 1,549,190	N.P.	Marland Oil Co	.....	July 1, 23	68,300	29¾	32¾	29	32	+2
203	182	.....	.....	$ 45,942,800	$100	Mexican Petroleum Co	$3Q	Apr. 21, 24	.....	.....	.....	.....	.....	.....
105¼	100¾	.....	.....	12,000,000	100	do pfd	$2Q	Apr. 21, 24	.....	.....	.....	.....	.....	.....
23¾	5¾	24⅛	14½	(sh) 357,900	N.P.	Mexican Seaboard Oil	50cQ	May 15, 24	8,000	18½	19¾	18¼	19¼	+ ¼
23¼	6	22¾	12⅞	(sh) 270,000	N.P.	do V. T. C.	50cQ	May 15, 24	1,700	18⅝	19½	18⅜	19	+ ⅜
12¼	3½	6⅞	3⅛	$ 29,798,450	$10	Middle States Oil Corp	.....	July 1, 23	12,000	3¼	3⅝	3¼	3½	+ ⅜
67	31	33	31½	$ 39,626,000	25	Ohio Fuel Supply Co	62½cQ	Apr. 15, 24	.....	.....	.....	.....	.....	.....
3⅜	⅞	2¼	1⅜	5,359,425	5	Oklahoma P. & R. Co	.....	Apr. 1, 21	200	1⅞	1⅞	1⅞	1⅞	0
52⅛	31¼	58¾	45	(sh) 3,500,000	N.P.	Pacific Oil Co	$1S.A.	Jan. 21, 24	41,500	45⅜	47⅞	45⅛	47	+1⅜
93½	53	61½	42⅜	$ 48,292,450	$50	Pan American P. & T.	$1Q	Apr. 21, 24	6,700	47¾	49	47½	48⅝	0
86	50⅜	59½	41¼	81,094,050	50	do Class B	$1Q	Apr. 21, 24	19,800	45¾	47	45⅜	46⅜	— ⅜
6¼	1¼	3½	2¼	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	.....	.....	.....	.....	.....	.....
68	27½	40½	35	$ 3,855,500	$100	do pfd	.....	July 2, 23	100	39	39	39	39	0
69⅝	19¾	42¾	33¾	(sh) 1,479,600	N.P.	Phillips Petroleum	50cQ	Apr. 1, 24	55,800	34	36	34	35½	+ ½
6	1⅜	4½	1⅜	$ 29,622,925	$25	Pierce Oil Corp	.....	.....	4,200	2	2⅛	1¾	2	0
44½	16	39¾	20	15,000,000	100	do pfd	.....	Feb. 1, 22	600	25	25¾	25	25½	+2
58⅜	17	43½	22¾	11,467,850	50	Producers & Refiners	.....	Sept. 15, 23	8,200	23⅛	25¾	23⅛	25¾	+1⅞
49½	36	47½	22	2,845,350	50	do pfd	87½cQ	May 5, 24	.....	.....	.....	.....	.....	.....
32	16¼	26⅜	20½	70,091,425	25	Pure Oil Co	37½cQ	Mar. 1, 24	10,400	20⅜	22⅜	20¼	22	+1⅜
100	82½	98½	92	13,000,000	100	do 8% pfd	$2Q	Apr. 1, 24	200	95	95⅞	95	95⅞	+ ⅞
55⅜	40½	59½	48	(sh) 611,579	13.40	Royal Dutch, N. Y. shares	$1.24	Feb. 11, 24	1,000	54¾	54¾	54	54	— ⅜
41¼	29⅛	41½	33	(sh) 153,623	£2	Shell Transport & T.	85½c	Jan. 26, 24	100	39	39	39	39	—1½
19¼	12⅜	20⅛	16⅛	(sh)10,000,000	N.P.	Shell Union Oil Corp	25cQ	Mar. 31, 24	18,400	16¼	17¼	16¼	17⅜	+ ⅜
95	89½	96⅜	91½	$ 20,000,000	$100	do pfd	$1½Q	May 15, 24	1,100	94	94½	94	94	0
16	6½	14⅞	10¾	7,202,200	10	Simms Petroleum Co	.....	.....	5,000	13¼	13⅞	12⅛	13½	+ ¾
39⅜	16	27⅜	18⅛	(sh) 4,480,518	N.P.	Sinclair Consolidated	50cQ	Feb. 29, 24	2,600	18½	19⅜	18⅜	19⅜	+ ⅞
99⅛	80¼	88½	77	$ 19,278,600	$100	do pfd	$2Q	May 15, 24	600	78¾	78¾	78½	78½	—1⅜
35	12⅝	29	20	20,579,090	25	Skelly Oil Co	.....	.....	15,000	18½	20⅝	18½	20	0
64½	47⅛	68⅜	55½	232,081,025	25	S. O. California	50cQ	Mar. 15, 24	1,800	56⅜	57⅞	55⅞	57	+ ¼
44⅜	30⅞	42¼	33⅜	503,376,775	25	S. O. New Jersey	25cQ	Mar. 15, 24	54,400	33½	34⅜	33	†33⅜	— ⅜
118¼	114¾	119	115⅞	199,972,900	100	do pfd	$1¾Q	Mar. 15, 24	500	118⅛	118¼	118	118¼	— ⅛
6¾	2	5¾	2⅜	(sh) 983,078	N.P.	Superior Oil Corp	.....	Dec. 20, 20	15,400	4⅜	4⅞	4⅜	4⅞	+ ⅝
52⅞	34¾	45⅜	39¼	$164,450,000	$25	The Texas Co	75cQ	Mar. 31, 24	29,300	39	40¼	38⅝	39¾	+ ⅝
24¾	5½	15¼	9	8,380,340	10	Texas Pacific Coal & Oil	.....	June 30, 23	6,100	9⅛	9¼	8⅞	9¼	— ⅛
144	94	151	120	50,003,500	100	Tide Water Oil Co	$1Q	Mar. 31, 24	500	126	126¼	125	126¼	+ ¼
14½	1¾	6¼	3¾	(sh) 2,956,788	N.P.	Transcontinental Oil Co	.....	.....	13,500	4	4	3¾	4	0
99¾	81	104	94	$ 18,000,000	$100	Union T nk Car Co	$1¼Q	Mar. 1, 24	200	99	99	99	99	—2
114	100	109¾	106¼	12,000,000	100	do pfd	$1¾Q	Mar. 1, 24	200	108⅞	108⅞	108¾	108¾	— ¼
30⅜	20	29⅜	23½	(sh) 460,000	N.P.	White Eagle Oil & Ref	50cQ	Apr. 20, 24	2,200	23½	23¾	23⅛	†23½	— ⅜

*New High †New Low xEx-Dividend Total Sales 523,800

Standard Oil Stock Traded In New York Curb Market

1923 High	1923 Low	1924 High	1924 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended May 16 Sales	First	High	Low	Last	Ch'ge
19¾	13½	18	15⅛	£3,000,000	£1	Anglo American	22cS.A.	Dec. 17, 23	4,600	16	16¼	15¾	16	— ¼
7⅞	2½	4⅞	3	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	5,200	3	4½	3	4	+1
150	108	265	155	$ 1,000,000	$100	Borne-Scrymser	$4S.A.	Apr. 15, 24	30	220	218	218	218	—2
94½	69	85¾	61	10,000,000	50	Buckeye Pipe Line	$1Q	Mar. 15, 24	220	63	63	†61	61	—2
257	207	430	238	1,500,000	100	Chesebrough Mfg. Co	$3½Q	Mar. 31, 24	.....	.....	.....	.....	.....	.....
.....	.....	52	50¾	3,000,000	25	do new w. i	.....	.....	.....	.....	.....	.....	.....	.....
118	110	115	115	1,000,000	100	do pfd	$1¾Q	Mar. 31, 24	.....	.....	.....	.....	.....	.....
50	32¼	54⅛	39¾	10,000,000	25	Continental Oil	50cQ	Mar. 15, 24	.....	.....	.....	.....	.....	.....
47½	15	20	15	1,500,000	25	Crescent Pipe Line	.....	Sept. 15, 23	.....	.....	.....	.....	.....	.....
188	85	144	110¾	3,000,000	100	Cumberland Pipe Line	$3Q	Mar. 15, 24	140	134	134½	134	134½	+ ½
117	87	105	95	5,000,000	100	Eureka Pipe Line	$2Q	May 1, 24	30	95	95½	95	95	—1½
78	55	69¾	57	16,000,000	100	Galena Signal Oil	$1Q	Mar. 31, 24	25	57⅛	57⅛	57⅛	57⅛	—1⅛
105	104	.....	.....	4,000,000	100	do new pfd	$2Q	Mar. 31, 24	.....	.....	.....	.....	.....	.....
116	108	.....	.....	2,000,000	100	do old pfd	$2Q	Mar. 31, 24	.....	.....	.....	.....	.....	.....
41¼	28	43¾	30	43,750,000	25	Humble Oil & Ref	30cQ	Apr. 1, 24	3,300	37½	37½	†30	37¼	—1¼
171	115	161	130	20,000,000	100	Illinois Pipe Line	$3S.A.	Dec. 31, 23	120	131	133	131	131	—2
125	92	119	99	39,222,750	25	Imperial Oil, coupons	75cQ	Mar. 1, 24	1,595	101½	101½	100	101	—1
103	78	100	88	5,000,000	50	Indiana Pipe Line	$2Q	May 15, 24	190	92	92	89½	91	—1
24¾	13¼	22¼	17¾	(sh) 7,118,138	N.P.	International Petroleum	25cQ	Jan. 2, 24	14,100	18	18	†17¾	17⅞	0
168	123	162	124	$180,000,000	100	Magnolia Petroleum	$1Q	Apr. 5, 24	505	131	132	†124	126½	—8
29	19⅜	25⅞	21	6,362,500	12½	National Transit	25cQ	Mar. 15, 24	200	22⅜	22½	22⅜	22½	+ ¼
138	70	97	73	5,000,000	100	New York Transit	50cQ	Apr. 15, 24	80	78	78	75	75	—5
109½	90	107½	94	4,000,000	100	Northern Pipe Line	$5S.A.	Jan. 1, 24	430	97½	97½	85	88	—11
85¾	48¾	79⅝	60⅜	60,000,000	25	Ohio Oil Co	25c	Mar. 31, 24	2,500	62¾	62¾	†60⅛	61	—2½
45¾	10½	43	32	10,000,000	25	Penn-Mex. Fuel	.....	.....	4,800	38	40½	36	40½	+2½
700	152	269	207	54,803,400	100	Prairie Oil & Gas	$2Q	Apr. 30, 24	6,365	216	216½	†207	215	—2
335	93	111	100	81,000,000	100	Prairie Pipe Line	$2Q	Apr. 30, 24	4,745	102	103	100½	103	0
212½	161	230	183	4,000,000	100	Solar Refining Co	$5S.A.	Dec. 20, 23	40	185	186	185	185	—3
116	87	100	90⅝	10,000,000	100	Southern Pipe Line Co	$2Q	Mar. 1, 24	90	97	97	94½	94½	—2½
195	100	171	130	20,000,000	100	South Penn Oil Co	.....	Sept. 30, 22	440	135	135	131	134	—1
88¼	66⅜	89	81	3,500,000	100	Southwest Pa. Pipe Lines	$2Q	Apr. 1, 24	10	85½	85½	85½	85½	+1
69⅞	49⅜	68¾	55½	220,181,638	25	S. O. Indiana	62½cQ	Mar. 15, 24	76,700	57¼	57¼	†55½	57⅝	— ¾
57⅛	36⅜	50¾	39⅛	8,000,000	25	S. O. Kansas	50cQ	Mar. 15, 24	1,500	40¾	40¾	†39⅛	40¼	— ½
188	80	120	101	16,715,221	25	S. O. Kentucky	$1Q	Apr. 1, 24	2,800	102¾	103	†101	103	— ¼
285	180	256½	198	3,000,000	100	S. O. Nebraska	$5S.A.	Dec. 31, 23	190	231	231	225	229	—4½
48¾	35¾	55¾	37¾	225,000,000	25	S. O. New York	35cQ	Mar. 15, 24	7,400	38½	40	†37¾	39¾	—1
320	270	336	277	14,000,000	100	S. O. Ohio	$2½Q	Apr. 1, 24	60	288	288½	†277	283	—7
118	116	119	119	7,000,000	100	do pfd	$1¾Q	Mar. 1, 24	.....	.....	.....	.....	.....	.....
89	21	81	34	1,806,200	100	Swan & Finch	.....	Nov. 1, 19	290	45	46½	44	46½	— ½
58¾	35⅜	69¼	56⅜	60,000,000	25	Vacuum Oil Co	50cQ	Mar. 20, 24	8,600	60⅝	61⅝	59⅜	61½	+ ½
28	19	29	25½	100,000	10	Washington Oil Co	.....	Jan. 31, 22	10	28	28	28	28	0

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New York Curb Bonds

Week Ended May 16

	High	Low	Last	Ch'ge
Anglo-Amer 7½s	102¼	102	102⅛	0
Cities Serv 7s C	95	94¾	94¾	— ¼
do 7s D	92	91⅝	91¾	— ¼
Galena S O 7s	105½	104¾	105½	+ ½
Gen Asphalt 8s	103½	103½	103½	0
Gen Pet 6s	96⅞	96⅝	96¾	+ ¼
Gulf Oil 5s	95⅜	95⅛	95⅛	— ⅛
do 5½s '26	101	101	101	+ ¼
do 5½s '28	100⅝	100⅝	100⅝	— ⅛
Maracaibo 7s	270	270	270	+10
Phillips Pet. 7½ w w	101	100	101	+1
Pure Oil 6½s	94⅜	94⅛	94⅜	— ⅛
S.O.New York 7s '25	101½	101½	101½	— ⅛
do 7s '26	103¼	103	103	0
do 7s '27	105½	105½	105½	— ¼
do 7s '28	106¼	106⅛	106⅛	— ⅜
do 7s '29	106⅝	106⅜	106⅝	+ ⅛
do 7s '30	106½	106½	106½	0
do 7s '31	106¾	106⅝	106⅝	— ⅛
do 6½s	106½	106⅛	106¼	+ ¼
Sun Oil 7s	102	102	102	0
do 6s	100⅛	99⅝	99⅝	— ¼
United Oil Prod	60¼	55	55	—8
Union Oil Cal 6s '25	100⅞	100¾	100⅞	0
Vacuum Oil 7s	107	106¾	107	+ ¼

New York Bonds

Week Ended May 17

	High	Low	Last	Ch'ge
Atlantic Ref. deb 5s	98	98	98	— ⅛
Barnsdall 8s	99	97½	97½	— ½
Calif Pet s f 6½s	97⅞	97¼	97⅞	+ ⅜
Empire G & F 7½s	91	89	89¾	— ⅛
Humble O. & R. 5½s	98½	97⅜	98½	+ ½
Marland 8s ser A	103¾	103½	103¾	+ ⅜
do 7½s ser B	100	100	100	— ¾
Mex pet of Del cvt 8s	102¾	102	102¾	+ ⅜
Pan-Amer Pet & Tr 7s	101¾	101	101½	+1½
Pierce Oil deb 8s	95	95	95	—1
Proders & Refnrs 8s	109	109	109	— ½
Sinclair Cons col 7s	89½	88	88¾	— ¾
do 6½s	86⅛	84¾	84¾	— ¼
Sinclair Crude 6s	98½	98	98½	— ½
do 8½s	99½	98¾	99⅛	0
Sinclair Pipe Line sf 5	82¾	82½	82¾	0
Tidewater Oil 6½s	103½	103	103	— ⅛
Union Oil of Cal 6s	101¼	100½	100½	— ½
do 5s	97¼	97⅛	97½	+1½
Union Tank Car 7s	104	103⅞	104	0

New York Curb Market

1923 High	1923 Low	1924 High	1924 Low	Par Value	Stocks	Transactions Week Ended May 16 Sales	First	High	Low	Last	Ch'ge
10	4¼	7	5	10	Ark. Nat. Gas	600	5¼	5⅜	† 5	5⅛	+ ⅛
1⅜	.65	1⅛	.75	1	Boston & Wyo	400	.75	.75	.75	.75	0
7⅜	3⅛	6⅜	3⅞	25c	Carib. Synd	2,000	4⅛	4⅛	† 3⅞	3⅞	— ⅛
195	128	155	139½	100	Cities Service	460	142	142	†139½	139½	—3
70	64¼	74	67¾	100	do pfd	700	73⅞	*74	73½	73⅝	— ⅛
6¾	5⅞	6⅞	6⅛	10	do pfd. B	100	6¾	6¾	6¾	6¾	0
19¾	12¾	16	13¾	10	do Bkrs. Sh	1,300	14⅛	14⅛	†13¾	13¾	— ⅛
7⅜	1⅝	5⅞	2⅛	N.P.	Creole Synd	11,400	4⅞	5¼	4⅞	5	+ ⅛
18½	5	8	4	N.P.	Derby O. & R	200	4	4	4	4	0
49½	22	34¼	29	N.P.	do pfd	.....	.....	.....	.....	.....	.....
1	.10	.60	.15	5	Federal Oil	1,000	.15	.15	†.15	.15	+ .03
38¾	24	46	38¾	25	General Pet	.....	.....	.....	.....	.....	.....
2⅛	.23	.60	.30	10	Glenrock Oil	.....	.....	.....	.....	.....	.....
68¾	45¾	65	56¾	25	Gulf Oil Corp	4,300	58⅜	58½	†56¾	58	— ½
9⅛	1	2⅜	.70	N.P.	Gulf State O.&R	300	.70	.74	.70	.74	+ .05
4	1½	2⅝	1¼	N.P.	Kirby Petroleum	1,200	1⅝	1⅝	1½	1½	— ⅛
5⅛	1½	4⅛	2⅛	N.P.	Marland of Mexico	1,300	.....	2⅝	† 2⅜	2½	— ⅛
20¼	12⅛	19¾	16	10	Mountain Prod	8,400	18½	18½	17½	18⅛	— ⅜
15¾	12¾	.....	.....	5	Mutual Oil Co	.....	.....	.....	.....	.....	.....
15⅜	8⅛	14	9¾	5	do cfts	35,100	10⅜	10½	† 9¾	10⅜	+ ⅛
6⅛	3½	6¼	4⅞	5	New Bradford	1,800	5¼	5⅜	5	5¼	— ⅛
52	15⅛	27½	20	10	New England Fuel	.....	.....	.....	.....	.....	.....
21¾	5	14	9¾	25	New York Oil	100	11	11	11	11	0
1⅞	.45	.80	.55	10	Omar O. & G	1,100	.65	.68	.65	.68	0
13	¾	3½	1⅛	N.P.	Peer Oil Corp	100	1⅞	1⅞	1⅞	1⅞	— ⅛
14¾	9¼	15½	12¼	10	Pennok Oil	2,900	14¼	14½	14	14½	— ⅛
6⅞	2	5⅜	3⅞	N.P.	Ryan Consolidated	2,400	4¼	5	4¼	4¾	+ ½
14	6¼	10½	8⅛	10	Salt Creek Cons	900	9	9	8¼	8¼	—1
25¾	15¼	26⅜	19⅛	10	Salt Creek Prod	7,900	24¼	24½	22¾	24½	— ⅛
4⅜	.75	2⅝	.80	5	Sapulpa Refining	500	2	2	1⅞	1⅞	— ⅛
4	.65	1⅝	.50	5	Seaboard O. & G	14,800	.50	.60	.50	.54	+ .01
13½	6	16	8	10	Tidal Osage	100	11	11	11	11	— ½
10⅞	4	8⅜	4⅝	5	Wilcox O. & G	12,000	5¼	5¼	† 4⅝	5⅛	— ⅛

Pittsburgh Stock Exchange

1923 High	1923 Low	1924 High	1924 Low	Par Value	Stocks	Transactions Week Ended May 16 Sales	First	High	Low	Last	Ch'ge
10	4¼	7	4⅞	10	Ark. Nat. Gas	879	5	5⅜	5	5⅜	0
33⅜	33	35⅜	35⅜	N.P.	Columbia Gas	.....	.....	.....	.....	.....	.....
27	22¾	28¾	26⅝	25	Lone Star Gas	374	28	28	27¼	27⅜	— ⅛
58	51	54⅜	51	50	Manuf. L. & H	315	51½	51¾	51¼	51½	0
19	11	16½	12	1	Ohio Fuel Oil	30	12	12	†12	12	— ½
66	30¾	33¾	31½	25	Ohio Fuel Supply	1,545	32½	33	32¼	33	+ ½
24	18⅜	25½	22⅜	25	Okla. Nat. Gas	407	22⅞	22⅞	†22⅜	22¾	— ⅛
10½	5¾	9¾	7⅝	5	Pittsburgh O. & G	10	7½	7⅝	7⅝	7½	0
14	5½	10⅝	7⅝	10	Salt Creek Cons	700	8½	8¾	8¾	8⅜	— ¾
13½	7	16½	9½	10	Tidal Osage	.....	.....	.....	.....	.....	.....
.....	.....	92	92	100	do pfd	.....	.....	.....	.....	.....	.....
29½	23¾	29½	27½	25	Union Nat. Gas	314	28½	28½	28	28⅜	0
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Pittburgh Curb Market

1923 High	1923 Low	1924 High	1924 Low	Par Value	Stocks	Transactions Week Ended May 16 Sales	First	High	Low	Last	Ch'ge
.....	.....	2½	2½	N.P.	Arkansas Fuel w.i.	.....	.....	.....	.....	.....	.....
1½	.22	.76	.25	5	Colombia Synd	.....	.....	.....	.....	.....	.....
2⅜	.26	.70	.40	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
37	10	9½	6	10	Forest Oil	.....	.....	.....	.....	.....	.....
1¼	1	.15	.15	1	Grant Oil	.....	.....	.....	.....	.....	.....
68	46½	64¼	57	25	Gulf Oil Corp	148	57	57	†57	57	—1
.03	.02	.....	.....	1	Homer Union	.....	.....	.....	.....	.....	.....
24½	16¾	21	21	N.P.	International Pet	.....	.....	.....	.....	.....	.....
8½	4	6	5	10	Marshall Oil	.....	.....	.....	.....	.....	.....
.36	.15	.39	.01	1	Mex. Wyoming	2,850	.02	.02	.02	.02	0
2½	1⅜	2⅜	2	1	Oklahoma Eastern	300	2⅛	2⅛	2	2	— ⅛
2	.60	.77	.77	10	Omar O. & G	.....	.....	.....	.....	.....	.....
22½	7	8	6	5	States Oil	.....	.....	.....	.....	.....	.....
.....	.....	14	10	10	Tidal-Osage, non-vote	.....	.....	.....	.....	.....	.....

*New High †New Low xEx Dividend